

BOLINDER'S

BOLINDER'S U.S.A. INSTALLATIONS

Name—	Type of Vessel	Dimensions			Tons D. W.	Power B. H. P.	Speed Knots
		Length	Breadth	Depth			
Bldg. B'more (Vacuum Oil Co.).....	Tanker	306	47	28	4500	1650	11
"	"	306	47	28	4500	1650	11
"	"	306	47	28	4500	1650	11
"	"	306	47	28	4500	1650	11
Chas. R. McCormick.....	Schooner	276	48	21	3500	640	8½
"	"	276	48	21	3500	640	8½
"	"	276	48	21	3500	640	8½
Manitowoc Shipbldg Co.....	Schooner	261	40-6	23	3000	640	9
"	"	261	40-6	23	3000	640	9
A. O. Andersen & Co., N. Y.....	Schooner	246	44	22	2600	640	9
"	"	246	44	22	2600	640	9
The Texas Co.....	Schooner	259-5	45-3	22-9	3500	640	8½
E. K. Wood Lumber Co.....	Schooner	210	42	15	1800	640	9¾
C. & O. Lumber Co.....	Schooner	175	42-6	18		640	
W. R. Grace & Co.....	Bark					640	
"	"					640	
A. O. Andersen & Co., N. Y.....	Schooner	192	41-3	21	1500	480	8½
Standard Oil Co.....	Schooner	261	43	23-6	3200	320	7
"	"	261	43	23-6	3200	320	7
"	"	261	43	23-6	3200	320	7
"	"	261	43	23-6	3200	320	7
"	"	261	43	23-6	3200	320	7
"	"	261	42	23-6	3200	320	7
Standard Transp. Co.....	Tanker	197-3	35	14-4	1600	320	7½
Pendleton Bros.	Schooner	255	43	22-6	3000	320	
"	"					320	
Andrew Mahoney	Schooner	225	43	20-3	2700	320	6¾
"	"	225	43	20-3	2700	320	6¾
"	"	225	43	20-3	2700	320	6¾
"Mabel Brown"	Schooner	225	44	23	2250	320	7
"Geraldine Wolvin"	Schooner	225	44	23	2250	320	7
"Jessie Norcross"	Schooner	225	44	23	2250	320	7
"Janet Carruthers"	Schooner	225	44	23	2250	320	7
"Mabel Stewart"	Schooner	225	44	23	2250	320	7
"Marie Barnard"	Schooner	225	44	23	2250	320	7
"Margaret Haney"	Schooner	225	44	23	2250	320	7
"Laurel Whalen"	Schooner	225	44	23	2250	320	7
Matson Navigation Co.....	Schooner	212	34	21-6	1700	320	8
R. P. Rithett.....	Bark	206	38	19	1850	320	7½
Shell Oil Co.....	Tanker	211	34	19-6	1800	320	7¼
W. R. Grace & Co.....	Schooner	170	38-8	9-8	800	320	8½
W. & S. Job & Co.....	Schooner	210	40	19	2100	320	7½
J. B. King & Co.....	Barge	220-7	35	21	1900	320	7
"	"	220-7	35	21	1900	320	7
"	"	220-7	35	21	1900	320	7
"	"	220-7	35	21	1900	320	7
"Carmela"	Bark	262	37-6	22	2200	320	7
Chas. R. McCormick.....	Schooner	230	44	19		320	
R. Lawrence Smith, N. Y.....	Schooner	236	40	19	2000	320	7
Pacific Commercial Co.....						320	
Honolulu Iron Works.....		124	25	9		240	
W. & S. Job & Co.....	Schooner	153-8	28-3	12-4	550	160	7
Borden & Lane.....	Schooner	138	32	13	600	160	7¾
"Marie L. Hanlon".....	Tug	71-5	17-8	7-5		160	9¾
"A. I. West".....	Schooner	161	40	11-6	1050	160	6
"Eclipse"	Schooner	104	27	14	500	160	7¾
"Pilar"	Schooner	148	32		850	160	6½
"Gracie S."	Pilot	83	24-7	10-2		120	9
W. & S. Job & Co.....	Schooner	122-5	24	13	400	100	6½
"Gilbert Islands"	Schooner	125	31	11-9	650	100	6
"Chiriqui"	Schooner	110	24	8	200	100	6½
"Ocmulgee"	Riverboat	120	24	5	90	100	8¾
F. A. Scharberg	Riverboat	97	19-6	8		100	

Total B. H. P. Marine Engines.....27,140

In addition to above OVER 10,000 B. H. P. stationary and smaller marine engines installed throughout U. S. A.

SEATTLE

HENRY LUND & CO.

SAN FRANCISCO

DONOHOE'S STEEL REINFORCED KEELSON

(Patent Applied for)

Washington Overseas Shipbuilding and Construction Co.

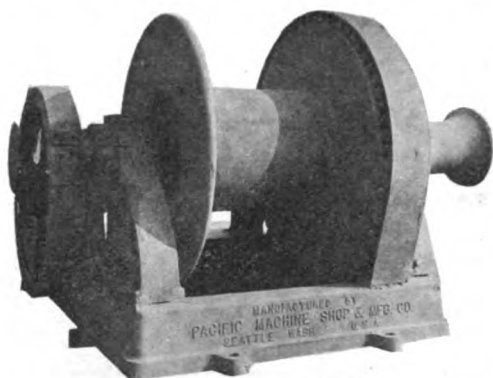
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PATRICK J. DONOHOE
Naval Architect

Pacific Block
SEATTLE, WASH.

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STEAM, ELECTRIC AND GASOLINE



TWO-TON ELECTRIC WINCH
Simple and flexible as steam and far more efficient

Winches, Windlasses and Capstans

Brailing and Purse Seine Winches for Cannery Tenders and Fish Boats

Hand and Power Steering Gears, Tail Shafts, Struts, Stern Tubes, Etc.
DIESEL AND SEMI-DIESEL ENGINE INSTALLATIONS AND REPAIRS

ELECTRIC WIRING FOR LIGHT AND POWER

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1426 Railroad Ave.

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Economical in Its Long Life. Satisfactory from
Every Angle

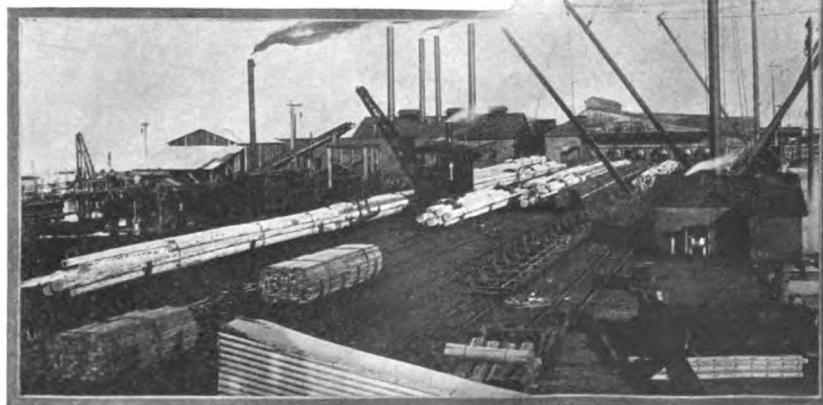
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As good as Shipmate Ranges, and that is all that need be said.

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For anchors up to 150 lbs. Has Winch Head for rope; wild-cat for chain cable. You can heave on a line—let the chain run free—or stop it instantly at any point. Three operations controlled by one Heaving Lever. No complicated parts.

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Established 1847

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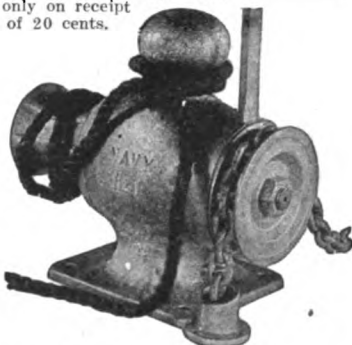


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"Sea Craft Suggestions and Supplies" — 216 pages. Full of useful ideas. Tells how to box the compass—what is proper Ground Tackle; gives hints on Steering Gear, Stern Bearings, etc. Well worth having. Sent only on receipt of 20 cents.



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BOLINDER'S

500,000 B. H. P. OF BOLINDER'S ENGINES
NOW IN USE IN ALL PARTS OF THE WORLD.



America's First Large Mercantile Motorship

The Vacuum Oil Co.'s Tanker

"Bramell Point"

Length.....	306' 0"
Breadth.....	47'
Moulded depth.....	28'
Loaded depth.....	22' 8"
Displacement.....	7250 tons
Deadweight capacity.....	5500 tons
Speed.....	10.5 knots

Equipped with 1650 B. H. P. "BOLINDER"
Fuel Oil Engines in three units, "M-11" Model.

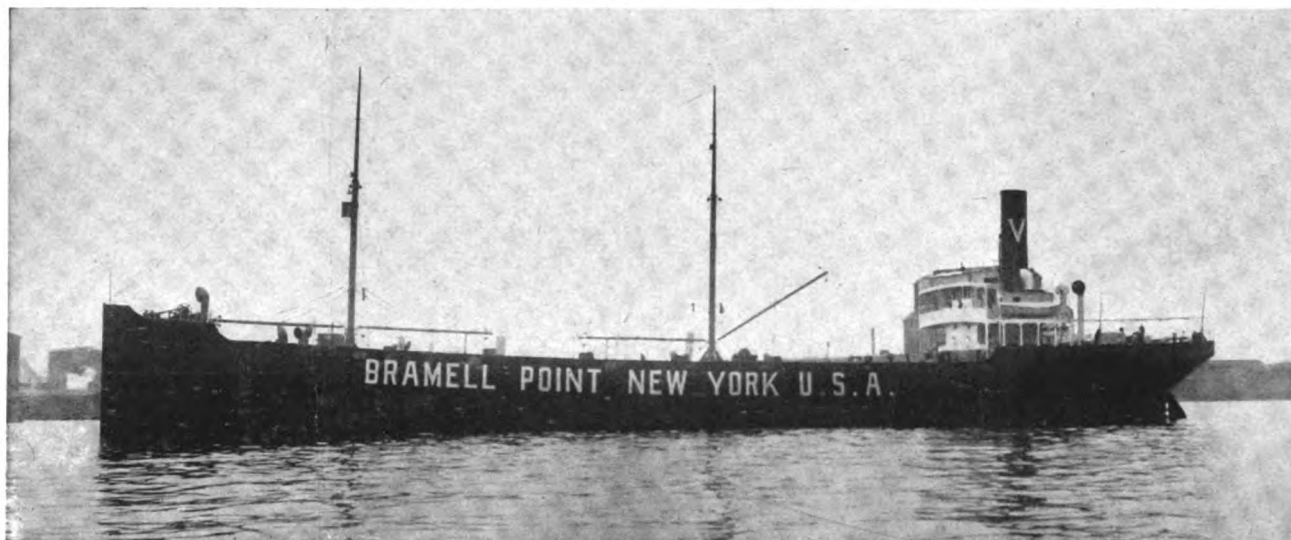
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her maiden round voyage from New York to Lis-
bon, Portugal, and return in excellent time to the
great satisfaction of her owners.

Present Sales
and
Yearly Output
70,000 B.H.P.

Present
U. S. A.
Bolinder
Installations
40,380 B.H.P.

BOLINDER'S

500,000 B. H. P. OF BOLINDER'S ENGINES
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Present Sales
and
Yearly Output
70,000 B.H.P.

Present
U. S. A.
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Installations
40,380 B.H.P.

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THAT'S the story of all "cheap," so-called "bargain" marine hardware. Sooner or later it comes back like a bedraggled Mariar! You can't count on getting something for nothing. But—in the long run you will surely save more by insisting on and getting the


Dependable Line of Marine Hardware

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Specially designed for Pacific Coast use. Drop forged. Heavily galvanized by the "Hot Dipped" Process.

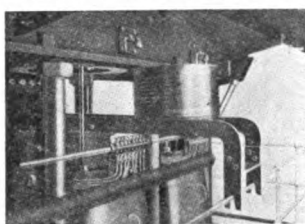
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A New, 1917 Model

Cylinders

8" x 10"; steam pipe, 2"; exhaust pipe, 2½"; self-draining piston valves.

Manifold for Steam and Exhaust

is lowest part of cylinders and valves, thereby draining all condensation from exhaust.

With Balanced Throttle Valve

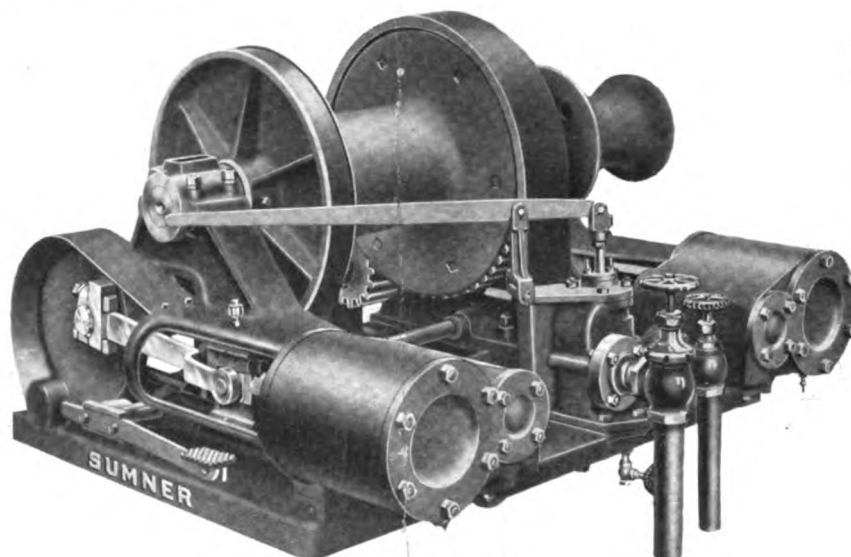
securely bolted thereto. Lever in any position desired.

Main Shaft

Forged steel, 4 3/16 in dia.

Extended Box

with 13" bearing, supporting main shaft the entire distance between main gear and gypsy head.



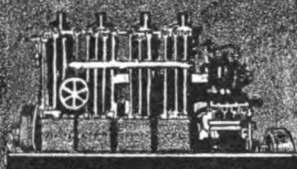
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internal combustion engines

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They deliver most power and
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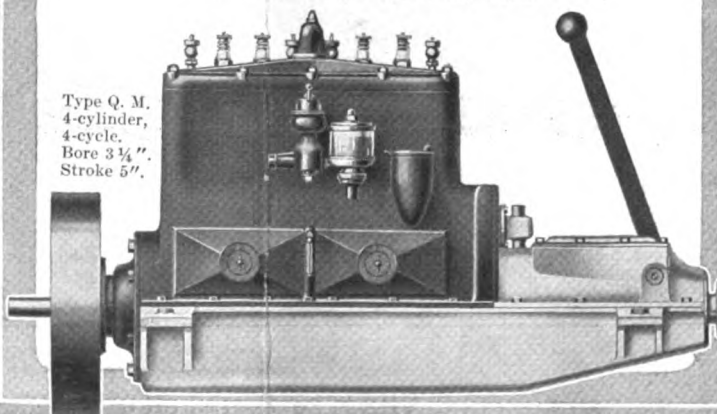
Earl P. Cooper Co., 1428 Bush St., San Francisco, Cal., and 1310

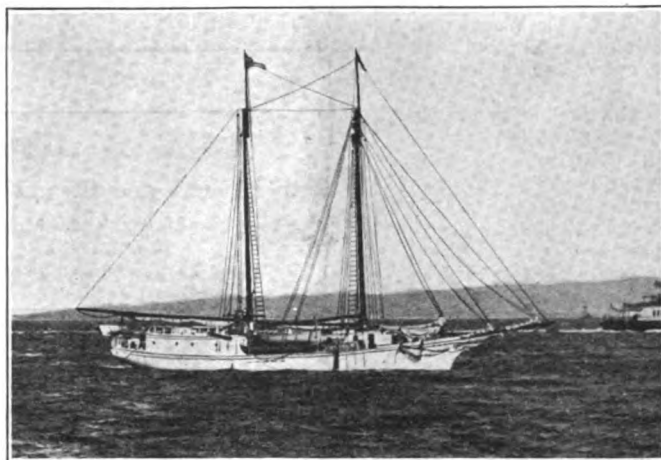
So. Angeles St., Los Angeles, Cal.

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Type Q. M.
4-cylinder,
4-cycle.
Bore 3 ¼".
Stroke 5".



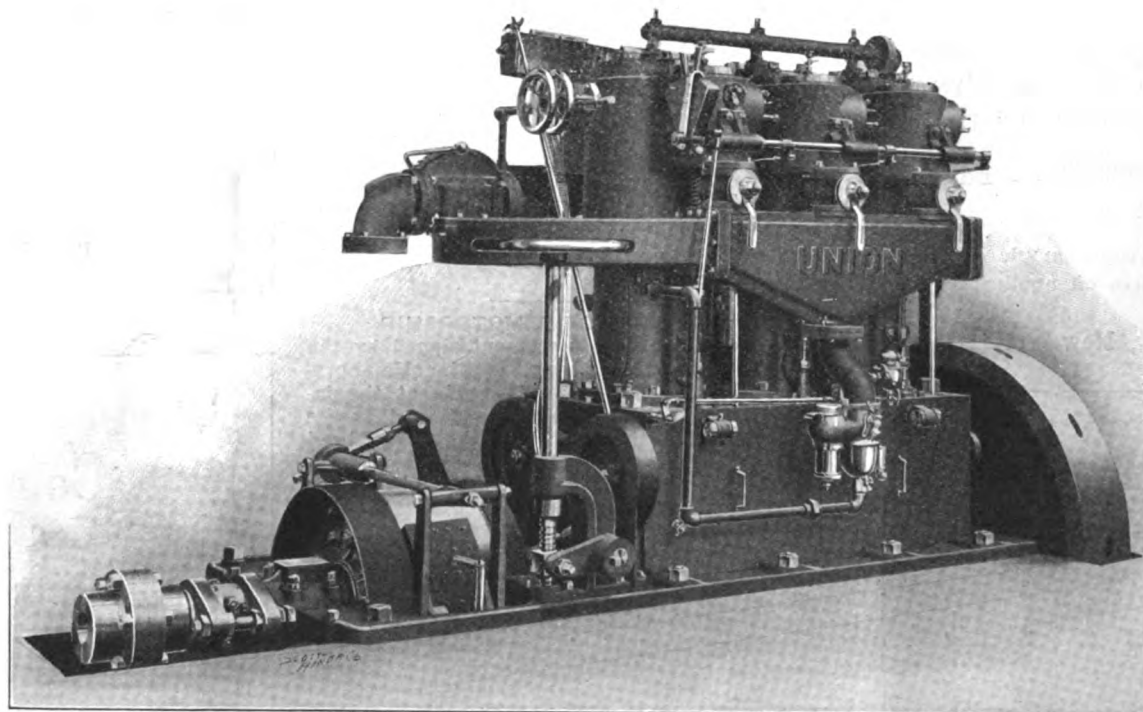


"Avarua" is equipped with 80 h. p. 3-cylinder Open Cross
Head Union Engine

Avarua was built for open sea service. To reach her ports of call, narrow and treacherous coral reefs must safely be navigated. Failure of her power plant among these reefs would mean certain destruction.

Her owners specified Union Engines, for they knew that—

"The Union is Certainly The Best Built Engine"



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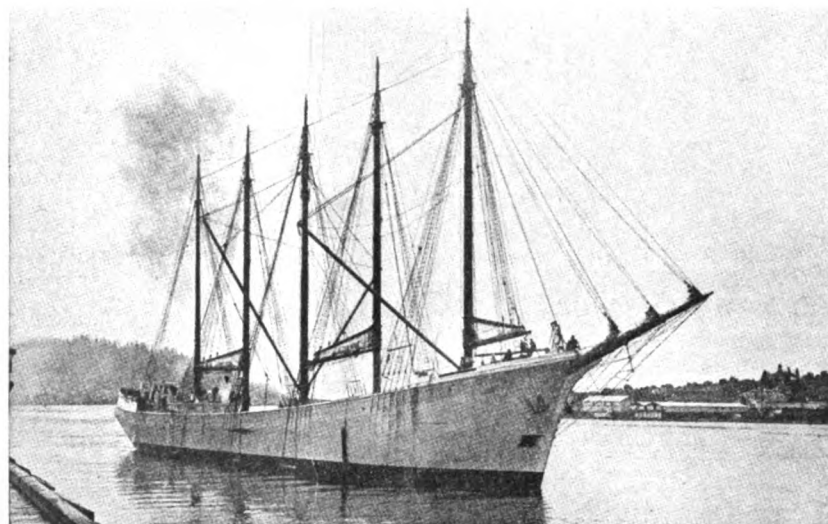
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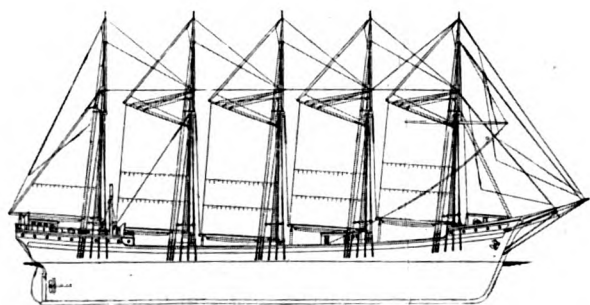
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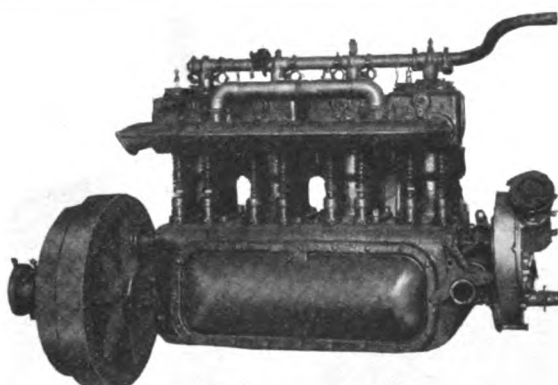
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Prices, \$125 to \$185.00

Approximate Over All Dimensions:

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Height	30 "
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With a large diameter low pitch propeller it makes
The Best Heavy Duty Engine In the World
Or put on a small diameter high pitch propeller and it will give
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4 Cylinder Engines, 20 to 60 Horsepower Heavy Duty

Prices, \$75.00 to \$175.00

Approximate Over All Dimensions

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Weight	350 to 750 lbs.

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ASK US,
Not the Fellow Who Wants You to Buy Something Else



Two Days' for

Out to the Banks and Back With a

The Auto Engine

A Money Back Guarantee

Heavy Duty does not necessarily mean large actual delivery of heavy duty service. The wear and tear on its parts and the less the number of small explosions is less destructive to heavy ones.

We Call Our Engines Heavy Duty Engines work and do it easily with no strain on the

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Our old customers are sending us new ones. best of service. Their engines take them to a fuel oil.

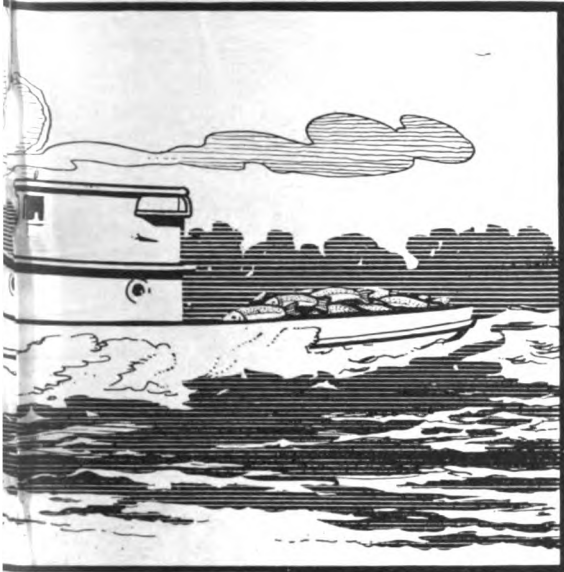
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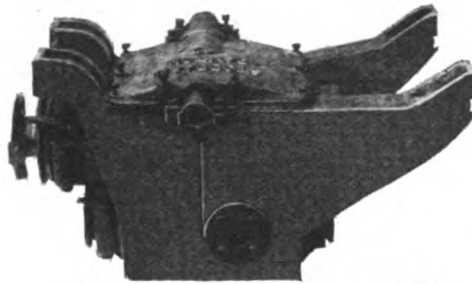
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60 Horsepower 55.00

3 Speeds Forward, 1 Reverse

Allows your motor to run at normal speed, but slows the boat down to 1 mile per hour under full horsepower if desired.

These are automobile transmissions. Made for hard service and *guaranteed* to stand the constant strain of their full horsepower load. The third speed ahead is full engine speed. When in lowest speed their pulling power is tremendous but very slow. A dozen big fish cannot stall the engine, and yet when throttled down it uses very little fuel oil.

The reverse on these gears is slow. It will not back up the boat rapidly nor stop quickly; but it will back up slowly.

A little more care is necessary in approaching a landing than with the marine reverse gear, but the advantage for fishing boats is very great, as it enables you to run to and from the banks at high speed. This means early return, quick unloading, time to rest and back on the banks for the next run.

This means Dollars to the Fisherman

Our engines all have one-way clutches, so that the combination is complete.

You Fish For Profit. The Power Plant that brings you the most profit and yet costs the least to buy and the least to keep running is the best and cheapest for you to get.

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While the Rest Are Getting Started

Engine Does It

With Every Engine

large bore and slow speed. It means the higher the speed of an engine the less the vibration and strain on the boat. A large engine has more machinery than a small number of

engines because they actually do heavy duty boat or engine or any working part.

From California To Alaska

men. All are saving money and getting the boat and back and do it with very little

to fix the difference between light, medium and heavy engine. What you want in an engine is in first-class working condition. These engines are low cost, and agree to refund your money if they do not promise.

A Very Good Reason

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and service out of them or our engine business by an engine you buy from us is actually

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For Steel and Wooden Vessels

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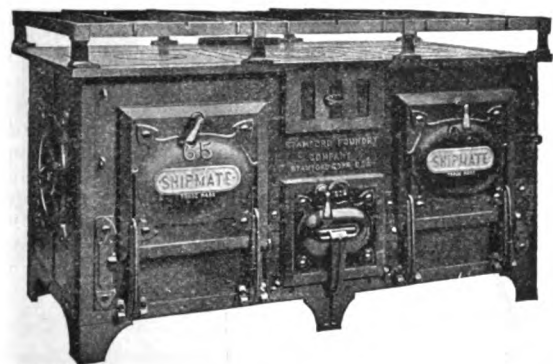
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NO DELAYS

By Using a Welding Plant, \$60.00

Transmission - Shop Machinery - Shipyard Equipment

PERINE MACHINERY CO., 209 First Ave. So., Seattle



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10 Sizes

14 Numbers

Good shipkeeping is as necessary as good housekeeping, requiring the same continual supervision, repairing and replenishing.

How is the range in your galley?

If it is time to get a new one, the SHIPMATE with its long record of good sea-going qualities must surely commend itself to you.

Made by

THE STAMFORD FOUNDRY COMPANY

Established 1830

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PACIFIC NET & TWINE COMPANY, Pier 8, Seattle, Washington.

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THE CANADIAN FAIRBANKS-MORSE COMPANY, 798 Beatty St., Vancouver, B. C.

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When Your Ship Needs A

C & W WIRELESS SET

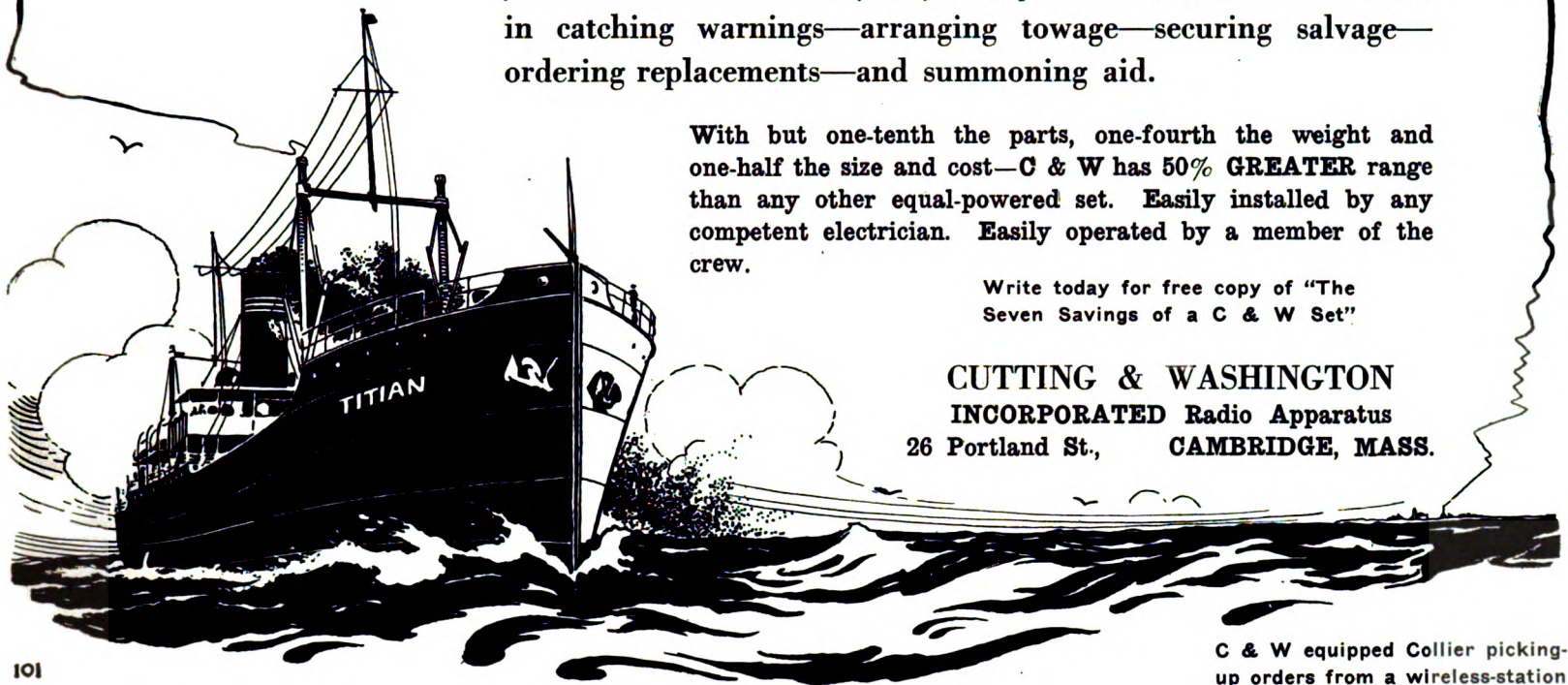
"Telegraph Orders"

Must your ship stand in for orders? Losing time—and logging useless extra miles? Or can she get her orders via WIRELESS—many miles at sea? *This saving alone will pay for a C & W SET on the first few trips.* Not to mention its value in catching warnings—arranging towage—securing salvage—ordering replacements—and summoning aid.

With but one-tenth the parts, one-fourth the weight and one-half the size and cost—C & W has 50% **GREATER** range than any other equal-powered set. Easily installed by any competent electrician. Easily operated by a member of the crew.

Write today for free copy of "The Seven Savings of a C & W Set"

CUTTING & WASHINGTON
INCORPORATED Radio Apparatus
26 Portland St., CAMBRIDGE, MASS.



101

C & W equipped Collier picking-up orders from a wireless-station

ELECTRIC CARGO WINCHES

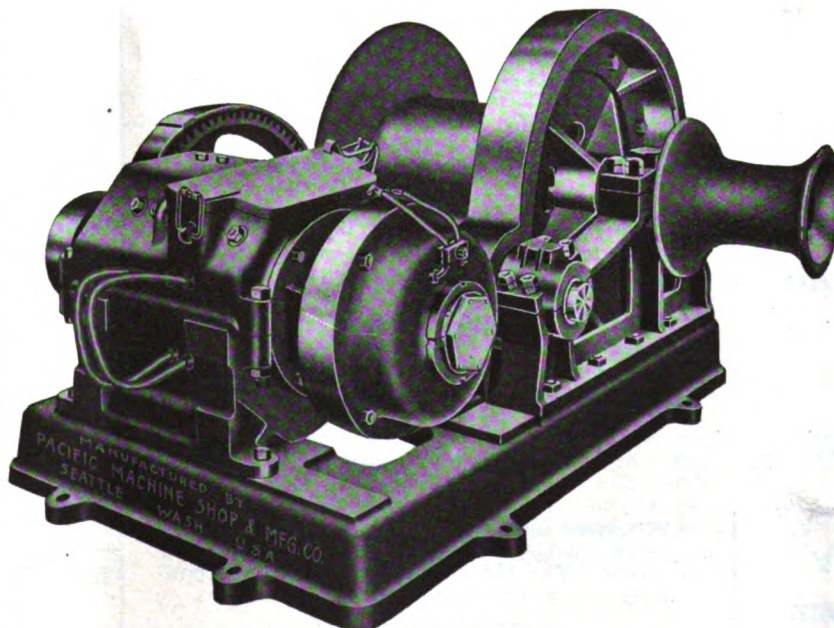
*Direct Geared
Absolutely Waterproof*

*Perfect Control Hoisting, Lowering
and Holding*

Automatically protected against damage from overloading.

A single drum winch, controlled by one lever.

The fastest, simplest and most economical cargo handling equipment for Motorships, full powered and auxiliary, steamships and sailing vessels, loading lumber, coal or general cargo.



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Pacific Machine Shop & Manufacturing Co.

1432-34 Railroad Ave., Foot of Pike St.

SEATTLE, WASH., U. S. A.

Hoisting speed varies with load.

Heavy loads can be handled slowly, light loads can be handled fast.

Any load can be lowered as fast or as slow as desired.

Any load can be held suspended for any length of time without danger of dropping.

If the current is cut off the load will NOT drop.

Sumner Steam Cargo Hoist

A New, 1917 Model

Cylinders

8" x 10"; steam pipe, 2"; exhaust pipe, 2½"; self-draining piston valves.

Manifold for Steam and Exhaust

is lowest part of cylinders and valves, thereby draining all condensation from exhaust.

With Balanced Throttle Valve

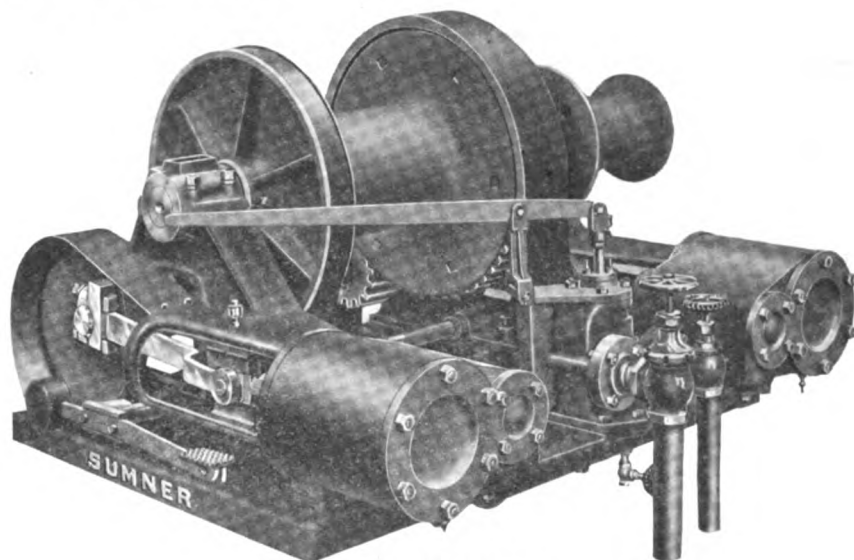
securely bolted thereto. Lever in any position desired.

Main Shaft

Forged steel, 4 3/16 in dia.

Extended Box

with 13" bearing, supporting main shaft the entire distance between main gear and gypsy head.



1917 Model, No. H32

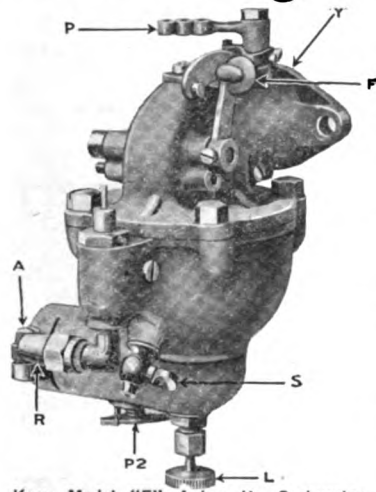
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Sumner Iron Works

EVERETT, WASH., U. S. A.

SOLE MANUFACTURERS AND DISTRIBUTORS

This Age of High Prices Spells ECONOMY



Knox Model "E" Automatic Carburetor

OUR KNOX MODEL "E" Automatic Carburetor will handle your distillate fuel equally as well as any other carburetor will handle gasoline. No heating or other auxiliary devices required. It is accomplished by our method of breaking up the fuel and automatically mixing the vaporized fuel with warm air.

FLEXIBILITY, ECONOMY POWER GUARANTEED.

1" — 1-3/16"	Model "E" Knox Distillate Carburetor	sells for\$18.45
1 1/4" — 1-5/16"	Model "E" Knox Distillate Carburetor	sells for 20.70
1 1/2" — 1-7/16"	Model "E" Knox Distillate Carburetor	sells for 24.00
2" — 2 1/4"	Model "E" Knox Distillate Carburetor	sells for 33.75

Agents wanted. Order at once; start your demonstration before your territory is taken up.

J. T. Sampson, of Raymond, Washington, after applying for the agency, and after testing out his first Knox Model "E" Distillate Carburetor, wires as follows:

"Carburetor perfectly satisfactory in every respect. Writing."

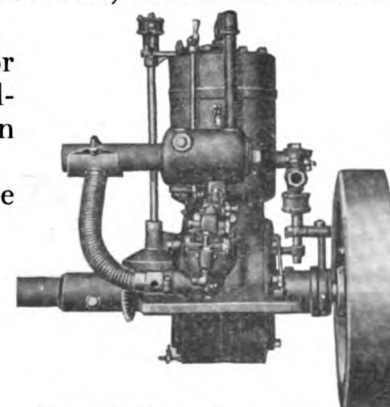
Geo. D. Campbell, of Nome, Alaska, writes as follows: "I find your carburetor even better than I expected, and it works successfully on our Pacific Coast distillate, which is universally used in preference to the other by-products of crude oil, on account of its cheapness."

Can you afford to operate on Gasoline at the present prices, when you can use the cheaper fuel, distillate, equally as well, with our Knox Carburetor?

Circulars mailed on request.

Camden Anchor-Rockland Machine Co.

CAMDEN, MAINE, U. S. A.



Knox 7 1/2 H. P. Motor, Fitted with Knox Model "E" Distillate Carburetor

Peninsula Shipbuilding Company

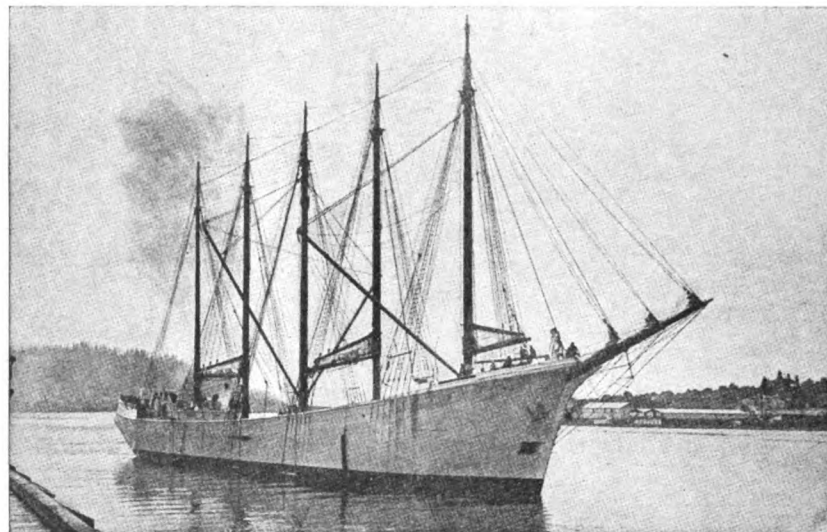
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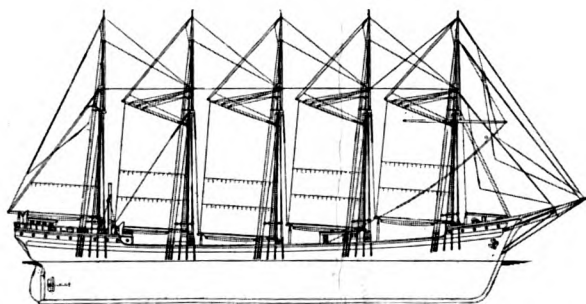
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150-ton Pontoon Crane at Boston Navy Yard
Similar Cranes at Honolulu and Bremerton

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Designers and Contractors for Buildings and Steel Structures.

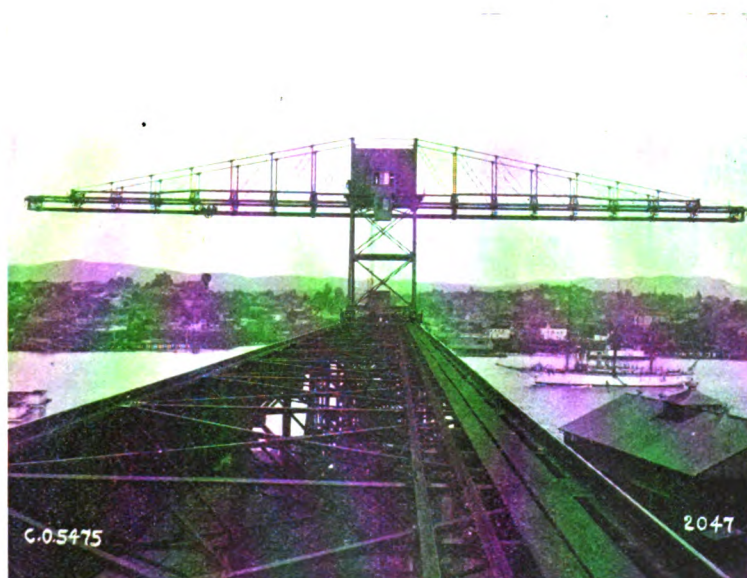
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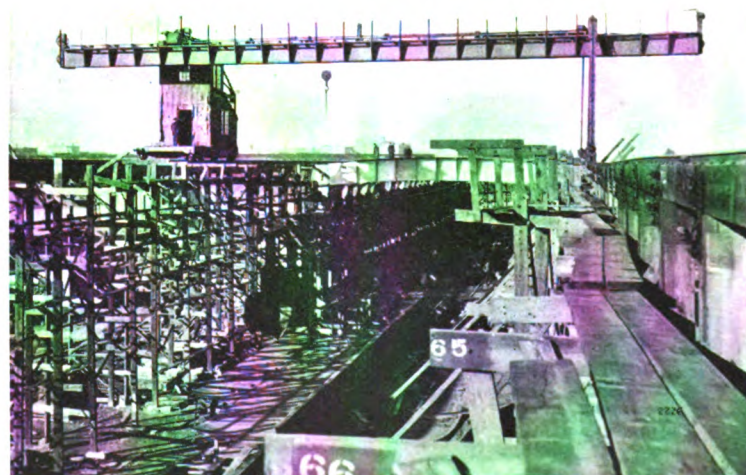
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OPERATING THE FOLLOWING

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Fisherman (nonchalantly)—"All right, Skip. She washed the crowd out o' the lee bunks an' flooded the fo'c'sle. Sweep' all th' cook's pots off'n his stove——"
Skipper (greatly concerned)—"Did it put his fires out?"
Fisherman—"Oh, no! The SHIPMATE'S built for this submarinin'——"
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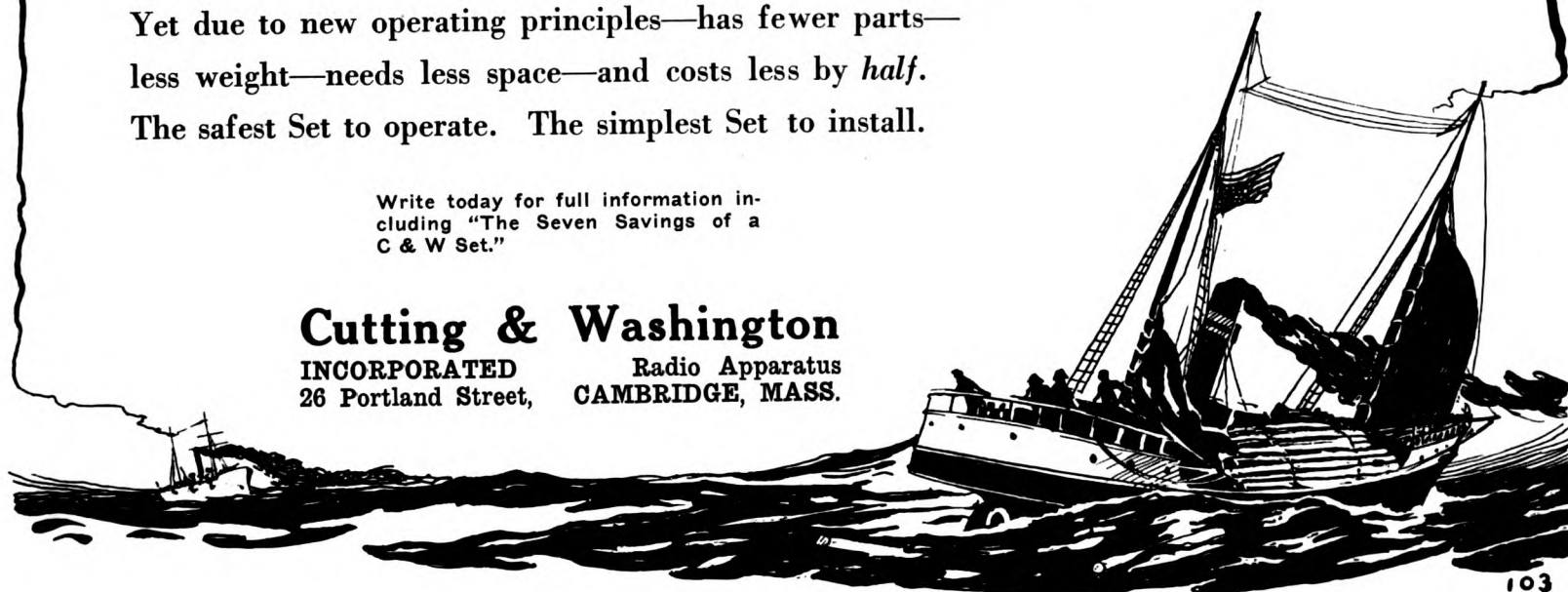
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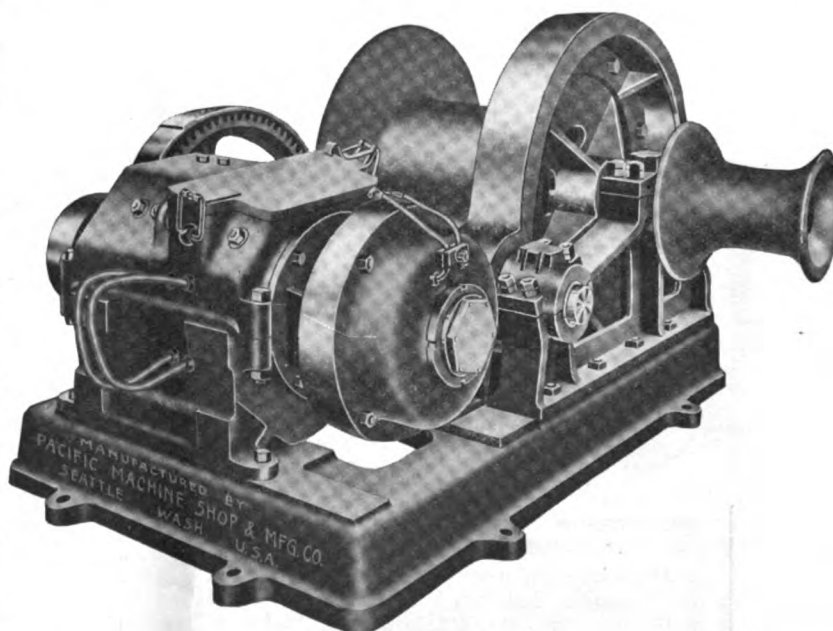
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Automatically protected against damage from overloading.

A single drum winch, controlled by one lever.

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Start Deliveries in 4 Months—and Furnish in Quantities

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Heavy Duty
Direct Reversible
Oil Engines

200 H. P. Marine Engines
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Valveless
Electric
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17 Battery Place

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Sumner Steam Cargo Hoist

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Cylinders

8" x 10"; steam pipe, 2"; exhaust pipe, 2½"; self-draining piston valves.

Manifold for Steam and Exhaust

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With Balanced Throttle Valve

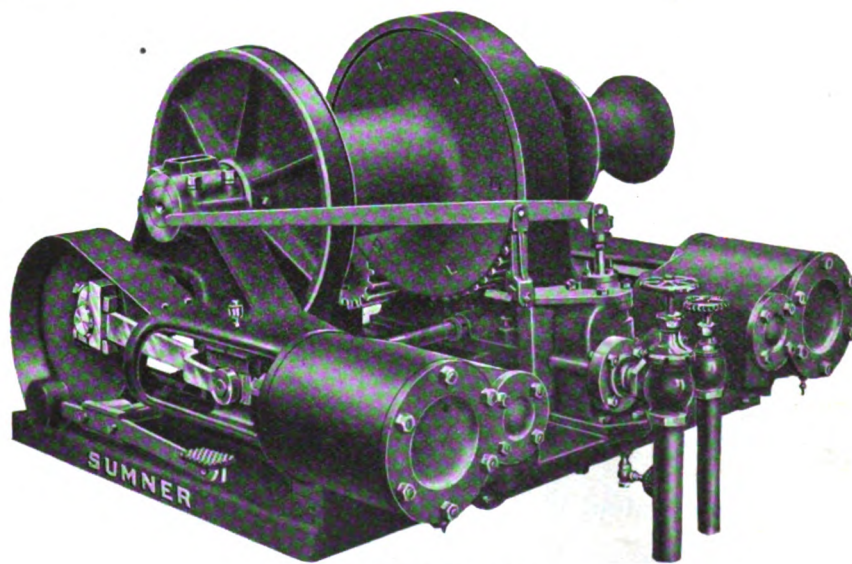
securely bolted thereto. Lever in any position desired.

Main Shaft

Forged steel, 4 3/16 in dia.

Extended Box

with 13" bearing, supporting main shaft the entire distance between main gear and gypsy head.



1917 Model, No. H32

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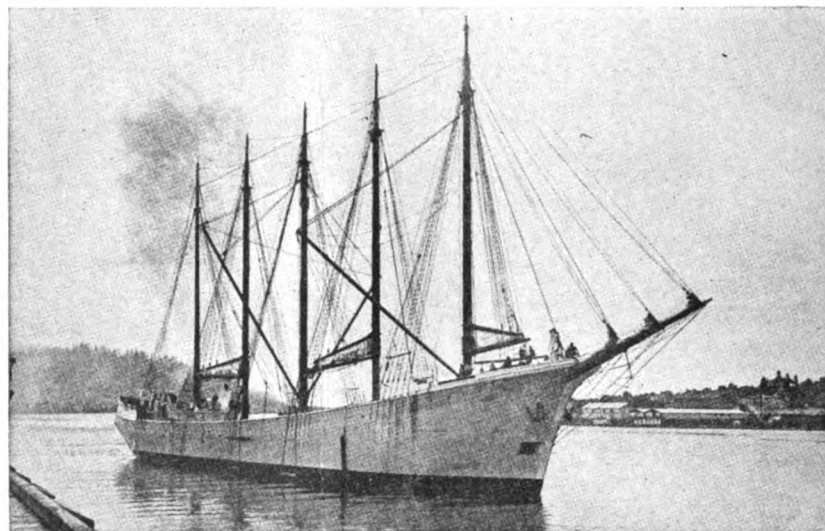
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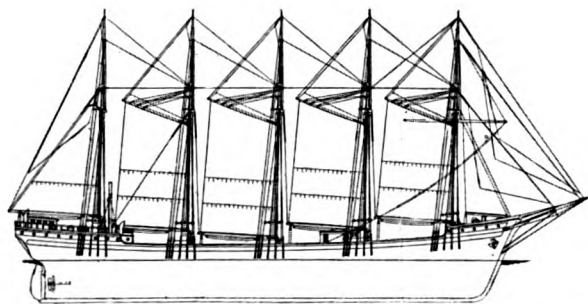
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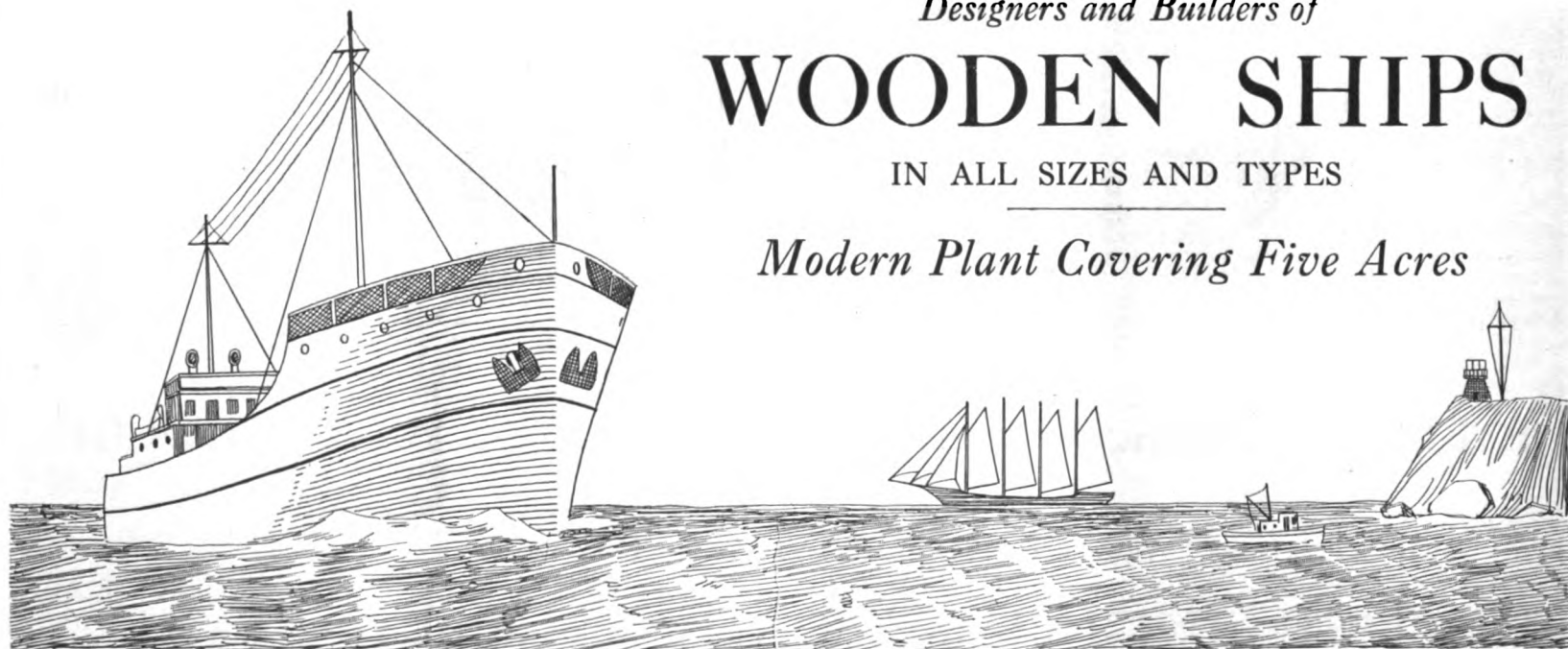
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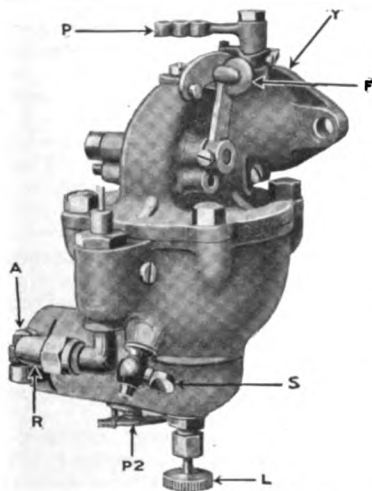
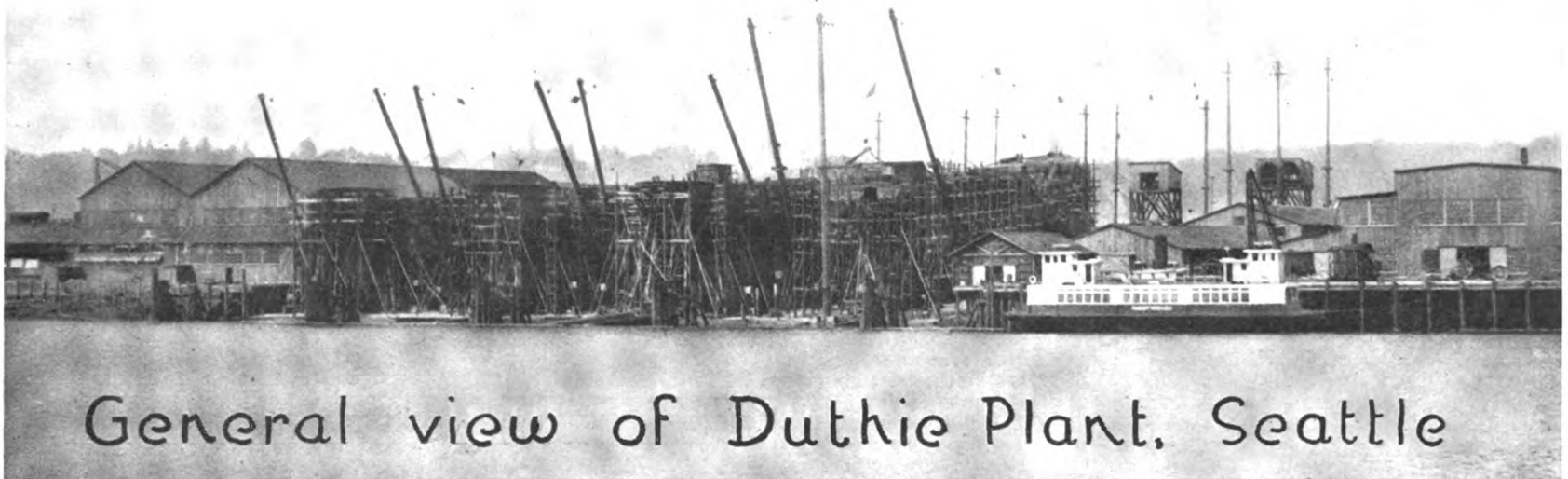
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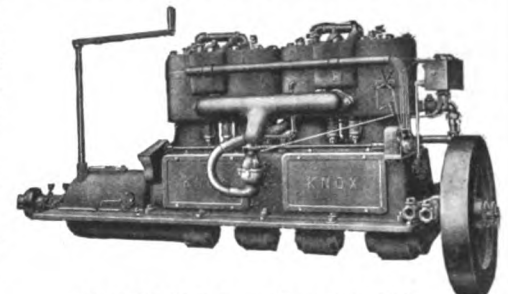
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We also manufacture marine motors, 3 to 75 H. P. A limited amount of territory open for live agents.

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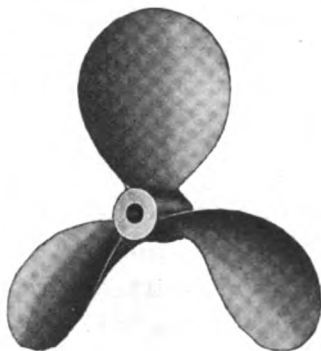
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Made of Hyde Manganese Bronze.
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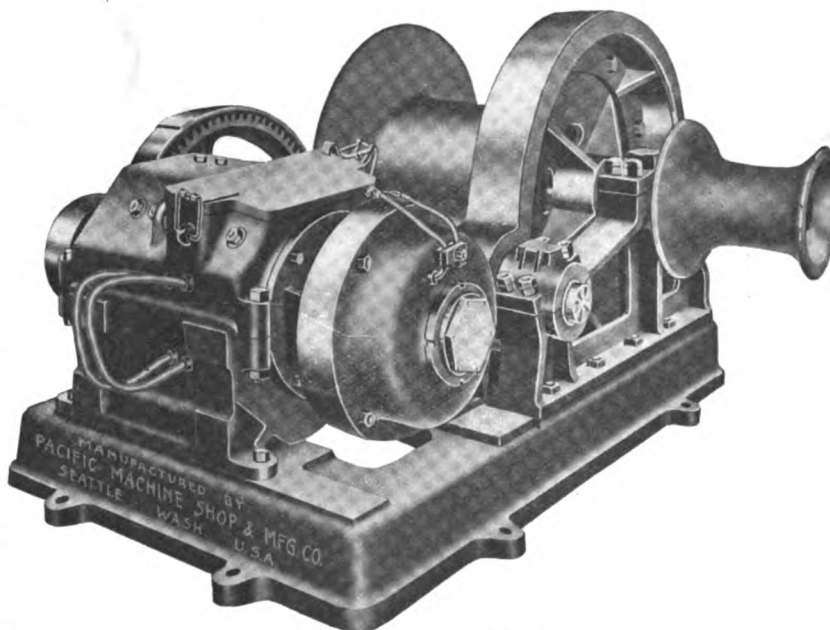
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They deliver most power and
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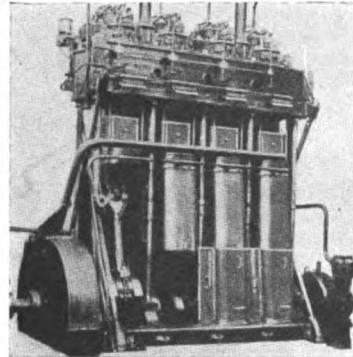
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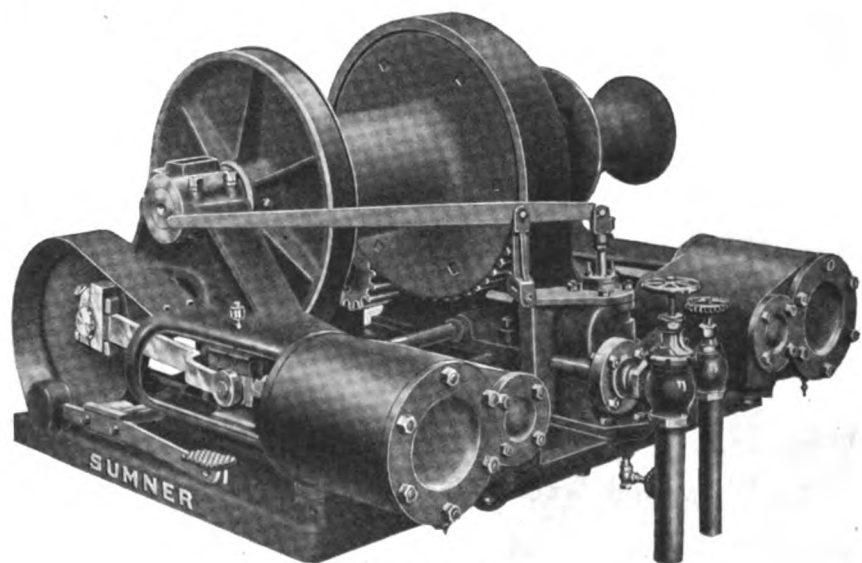
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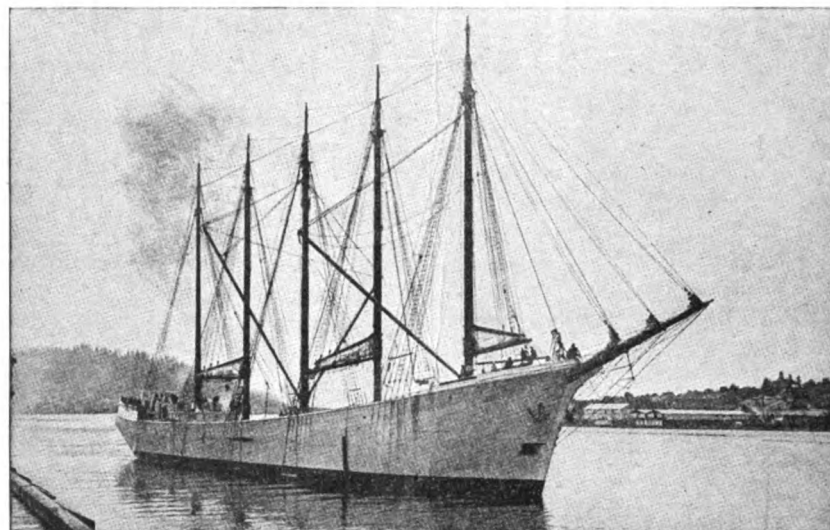
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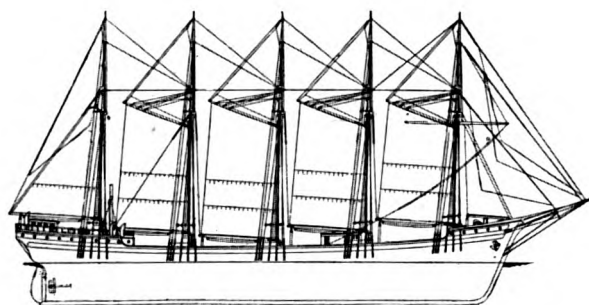
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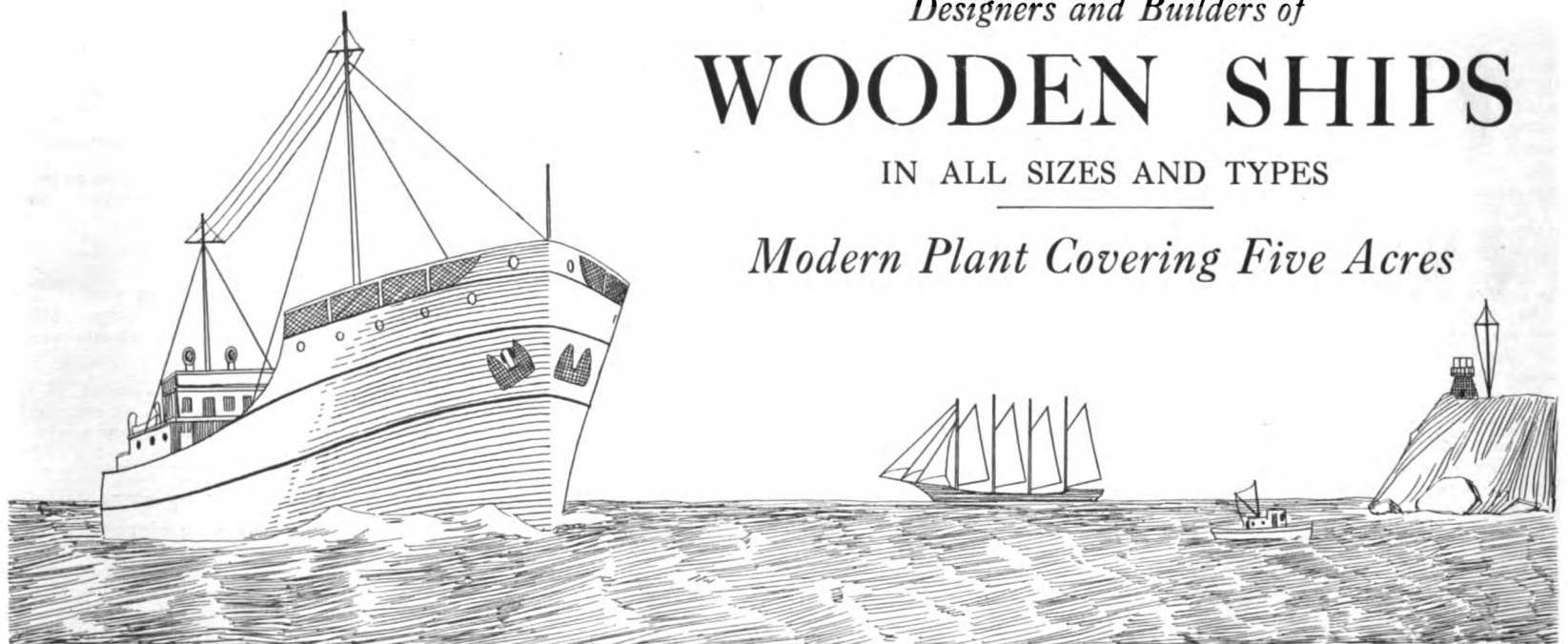
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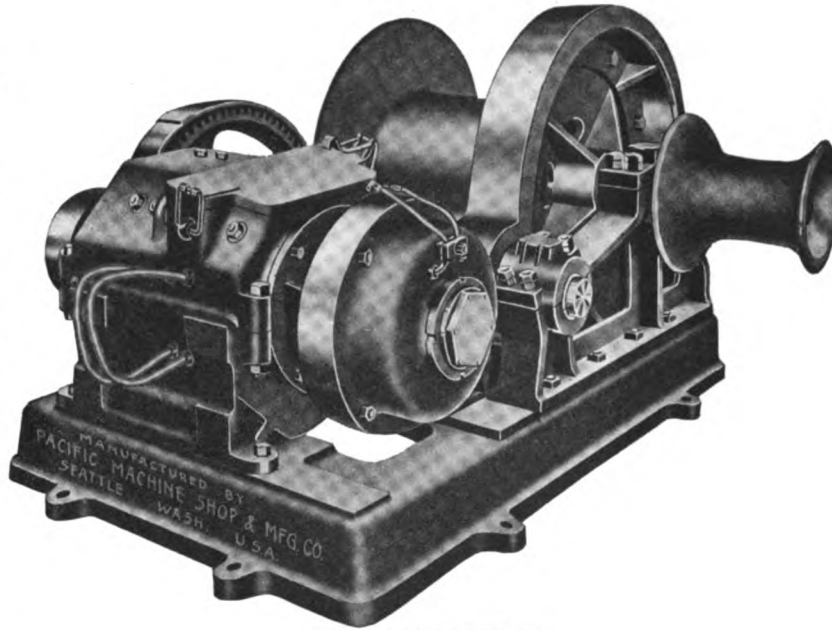
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*Perfect Control Hoisting, Lowering
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Automatically protected against damage from overloading.

A single drum winch, controlled by one lever.

The fastest, simplest and most economical cargo handling equipment for Motorships, full powered and auxiliary, steamships and sailing vessels, loading lumber, coal or general cargo.



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Hoisting speed varies with load.

Heavy loads can be handled slowly, light loads can be handled fast.

Any load can be lowered as fast or as slow as desired.

Any load can be held suspended for any length of time without danger of dropping.

If the current is cut off the load will NOT drop.

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DESIGNER
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of
**Wooden
Vessels**

WINSLOW, WASHINGTON, U. S. A.



**internal
combustion
engines**

-run best when
lubricated with

ARISTO
MARINE MOTOR OIL



They deliver most power and
run most economically when
using the clean fuel

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Supplied at main Pacific Ports by the UNION OIL COMPANY
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J. F. DUTHIE & CO.

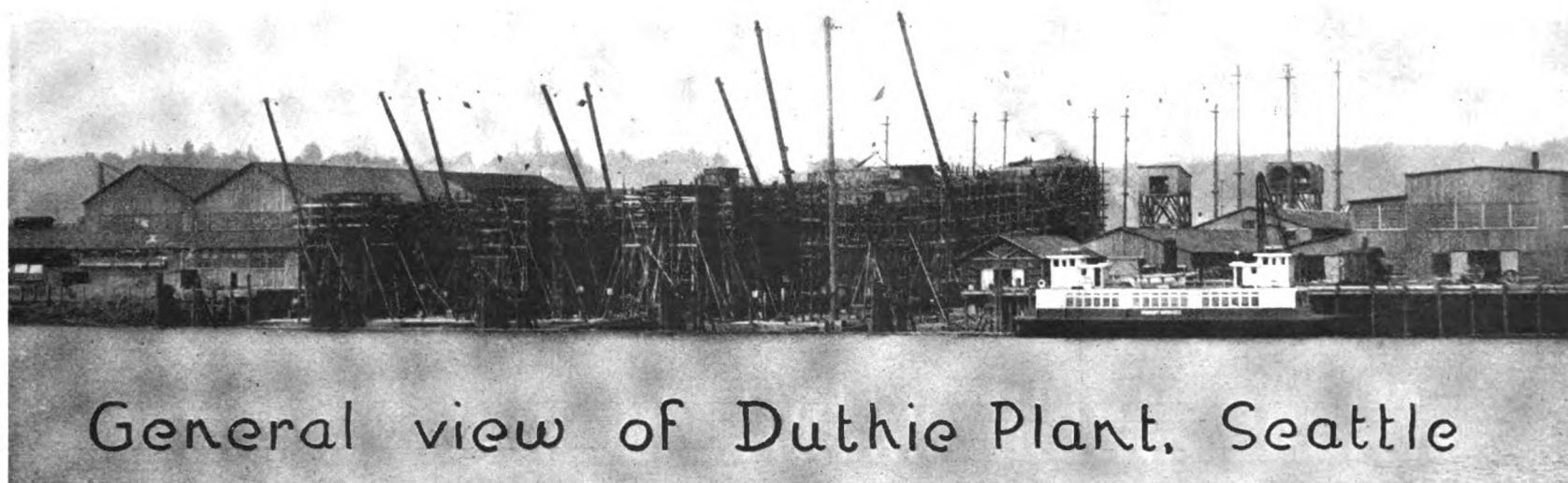
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Builders of Steel Steamships

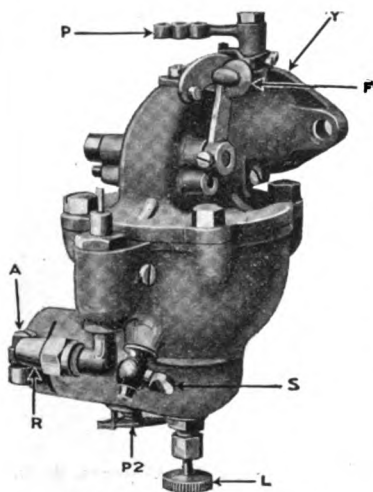
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Kitsap Avenue, East Waterway

Seattle, Wash.



General view of Duthie Plant, Seattle



Model "E" Knox Carburetor

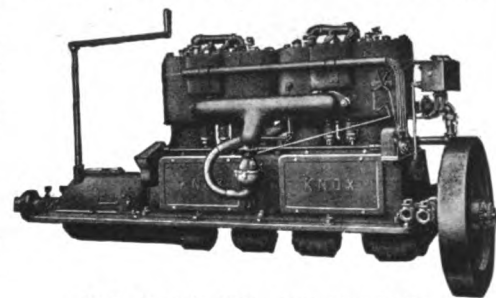
THIS AGE OF HIGH PRICES SPELLS ECONOMY AND INCREASED CARBURETOR EFFICIENCY

Our Knox Model "E" Carburetor has been designed especially for the present day low grade fuels. It will handle distillate or a mixture of 50% kerosene and 50% gasoline equally as well as straight gasoline. No super heating device required; it is accomplished by breaking up the fuel by means of multiple jets and mixing with hot air. FLEXIBILITY, ECONOMY and POWER guaranteed. A trial will convince the most skeptical. Write for our thirty-day trial offer.

We also manufacture marine motors, 3 to 75 H. P. A limited amount of territory open for live agents.

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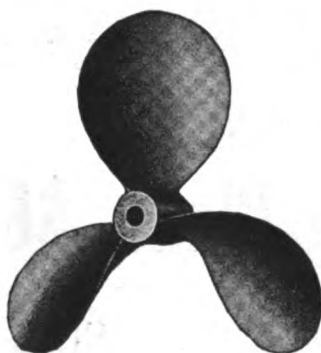
50 H. P., 7x8, Knox Heavy Duty Motor

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PROPELLERS

From 8 in. to 20 ft. in Diameter.
Made of Hyde Manganese Bronze.
The Most Efficient Propellers
Ever Designed.



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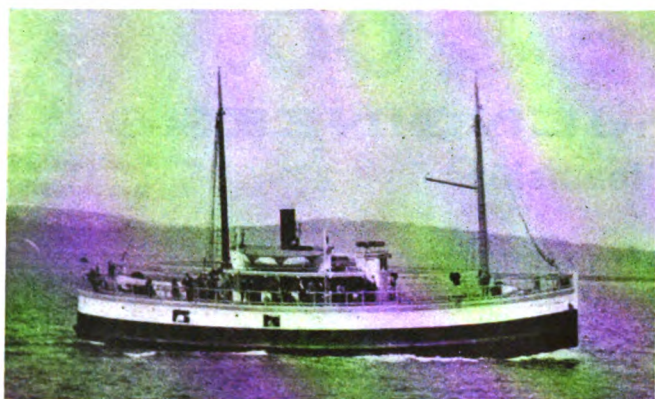
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CANADIAN MOTOR BOAT, Ltd.

60-62 Adelaide Street East

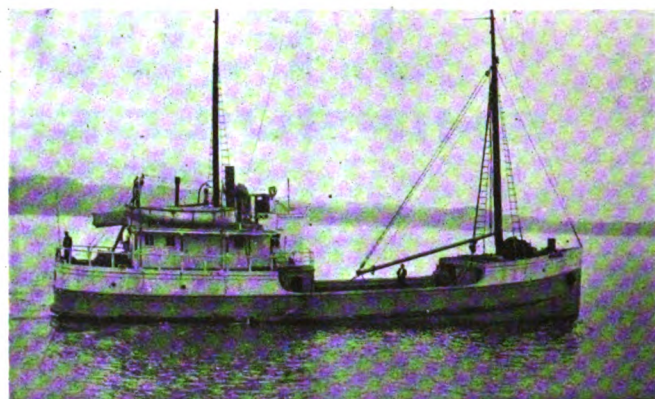
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STEAMER "SUE H. ELMORE"

Built 1900. Joseph Supple, Portland, Oregon.
 Gross tons, 232. Net, 131.
 Length 100'; beam, 24'; depth 8'.
 Cargo capacity, 175 cubic tons. Dead weight, about 165 tons.
 Draft, Light, Forward, 5' 6"; Aft, 8'.
 Draft, Loaded, Forward, 8'; Aft 10'.
 Power:
 Fore and Aft Compound Condensing Type Engine. Nominal
 h. p. 100. Indicated 300. Willamette Iron & Steel Co., Port-
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 Cylinders, 10x20x20. 20" Cylinder, low pressure.
 Revolutions, 125.
 Boiler—Kingsford Foundry & Machine Works. Scotch Marine.
 Built 1914. Single end, 8'x10' 6" diameter. Working pressure
 160 lbs.
 Average speed, 9 knots.
 Electric lighting plant.
 Good condition. Equipped for sea.
 Immediate delivery, Astoria, Oregon.
 Thorough inspection invited.



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Built 1911. Kruse & Banks, North Bend, Ore.
 Port Orford Cedar and Fir.
 Gross tons 155; Net 123.
 Length 96' 6". Beam 24' 6". Depth 7' 6".
 Carrying capacity, about 200 tons, dead weight.
 Draft, Light, Forward 3'; Aft 8'.
 Draft, Loaded, Forward 7'; Aft 9'.
 San Francisco "Standard" Gas Engines, Twin 110 h. p. each.
 Frisco "Standard" 16 h. p. Hoist and Winch.
 10 h. p. Auxiliary Frisco "Standard," for pumps and electric light
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 Average speed, 9 knots at sea.
 Excellent condition. Equipped for sea.
 Immediate delivery, Astoria, Oregon.
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S. Elmore & Co., General Agents
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A solid, plain, reliable range—to suit widely varying requirements—that
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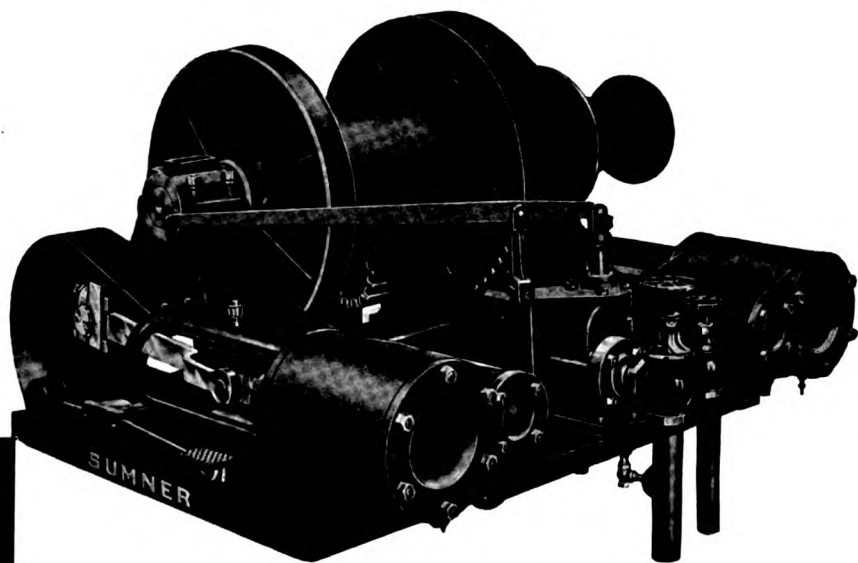
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Designers and Licensors

WERKSPoor — AMSTERDAM — HOLLAND

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1917 Model, No. H32

Sumner Steam Cargo Hoist

A New, 1917 Model

Write us for Complete Description with Weights and Prices

SUMNER IRON WORKS

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CYLINDERS—8"x10"; steam pipe 2"; exhaust pipe 2½"; self-draining piston valves.

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MAIN SHAFT—Forged Steel, 4 3/16" in diameter.

EXTENDED BOX—With 13" bearing, supporting main shaft the entire distance between main gear and gypsy head.

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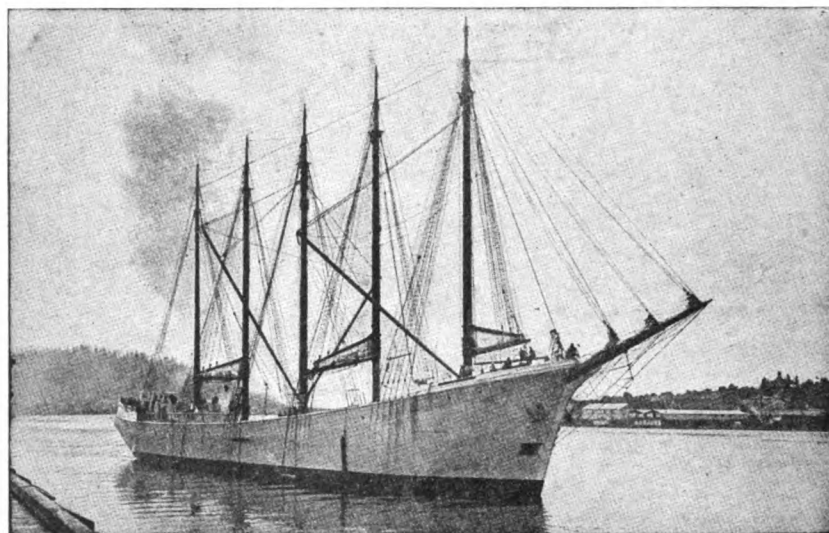
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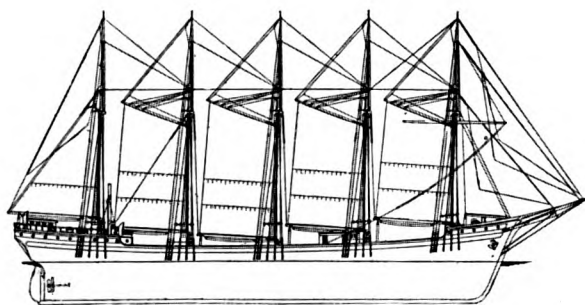
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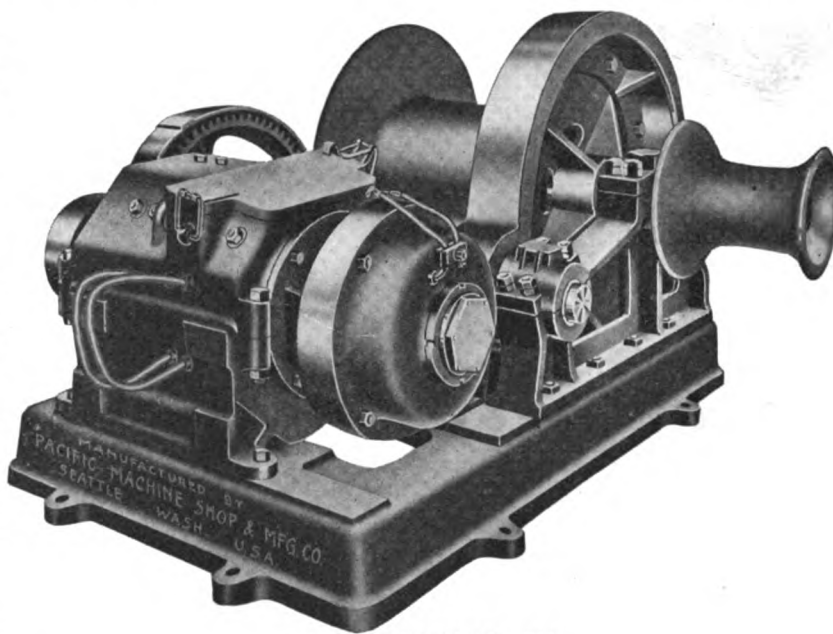
*Direct Geared
Absolutely Waterproof*

*Perfect Control Hoisting, Lowering
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Automatically protected against damage from overloading.

A single drum winch, controlled by one lever.

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Heavy loads can be handled slowly, light loads can be handled fast.

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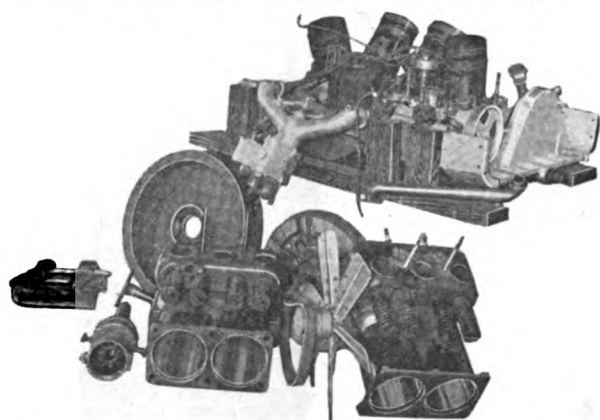
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A used automobile engine, put thru this sort of an inspection and then overhauled and reassembled is bound to be a good engine when it comes out. Better, in fact, than the average marine engine the day it leaves the factory.

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That Money Can Buy**

**For Racing Boats, Pleasure Boats and Heavy
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This We Have Proven to Scores of Boat Owners

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internal combustion engines

-run best when
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They deliver most power and
run most economically when
using the clean fuel

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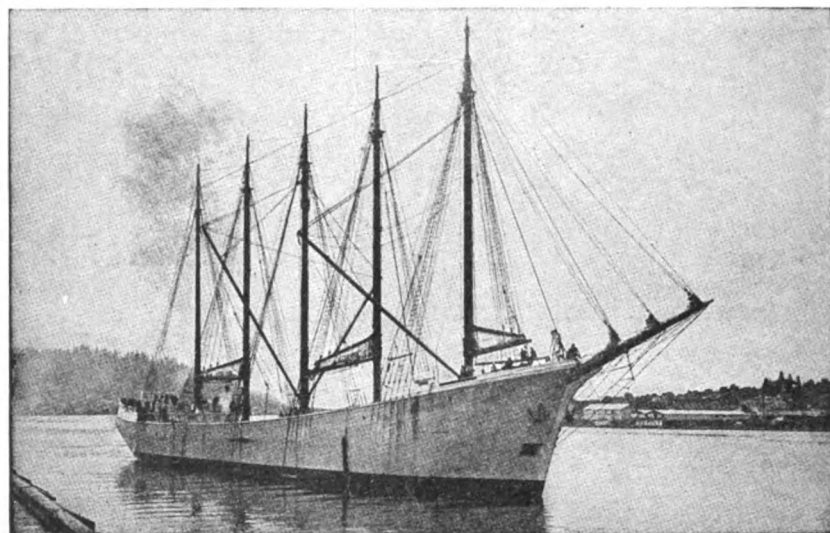
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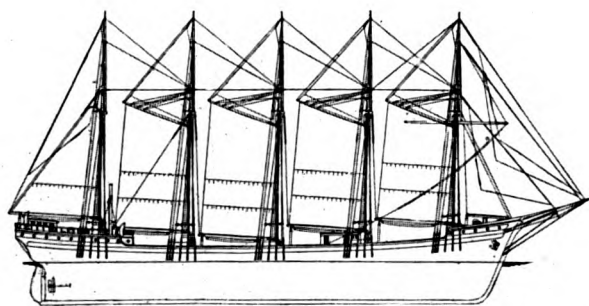
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Capacity, 2,225,000 Feet Lumber

**A Centrally Located, Well Equipped Yard, Capable
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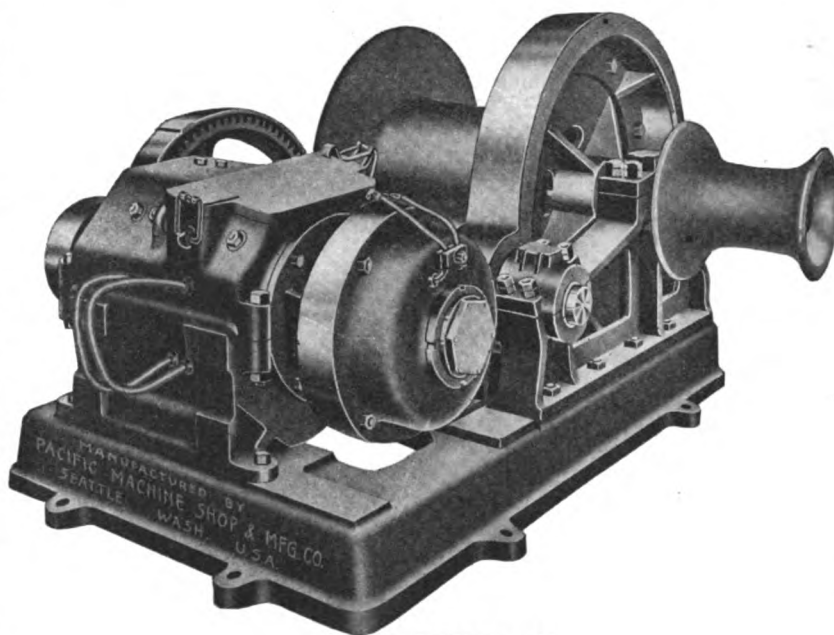
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Absolutely Waterproof*

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Automatically protected against damage from overloading.

A single drum winch, controlled by one lever.

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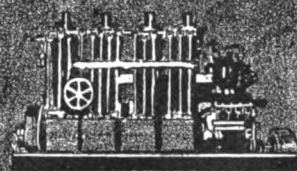
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NEVER in marine history have "warnings" meant more than today. A wireless set to pick up weather warnings—ice warnings—war warnings—might mean the difference between the safety and destruction of your ship.

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combustion
engines**

—run best when
lubricated with

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They deliver most power and
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using the clean fuel

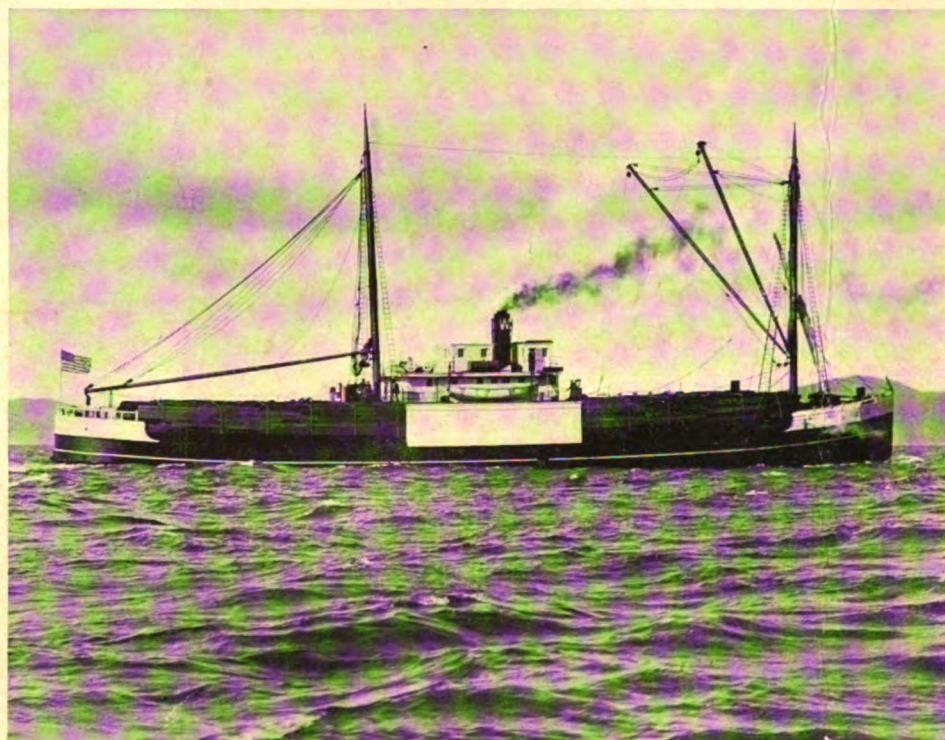
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500,000 B. H. P. of Bolinder's Engines
Now in Use in All Parts of the World

Present Sales
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Yearly Output
70,000 B. H. P.



Present U. S. A.
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Installations
43,000 B. H. P.

E. K. Wood Lumber Company's M. S. "Sierra" equipped with two 320 b. h. p. Model "M-11" "Bolinder" Fuel Oil Engines, leaving San Francisco for Valparaiso with 1,250,000 feet of lumber and sufficient fuel for round trip.

Craft under construction and to be fitted with Bolinder Engines in the United States alone aggregate over 130,000 tons; Bolinder Engines now in service, over 12,000.

THE BOLINDER

THE ENGINE THAT IS NOT A DIESEL

THE ENGINE THAT IS NOT A SEMI-DIESEL

THE ENGINE THAT IS THE BOLINDER

THE STANDARD FOR HOT-BULB ENGINES

An example of the ruggedness of the Bolinder's engine was displayed in the case of the M. S. "Astri" recently. This vessel encountered a hurricane off Mazatlan and became severely strained, resulting in the flooding of the engine-room—the water rising over the tops of the cylinders. After the storm the engine room was pumped out and the engines started, bringing the ship to port under her own power.

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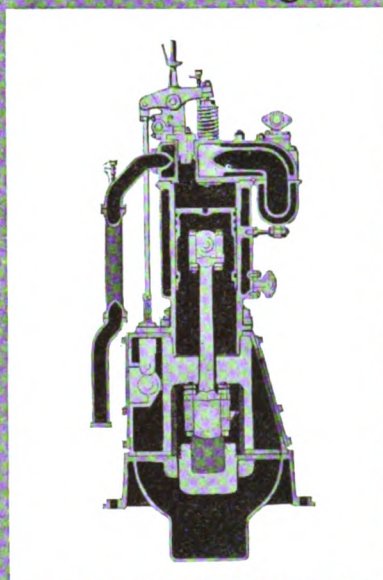
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**ACME
ENGINES****THE MOST MODERN
HEAVY DUTY****ACME
PERFECTION****DISTILLATE ENGINES**
Standardized and Interchangeable Construction

SEPARATE CYLINDERS
SEPARATE CYLINDER
HEADS
LONG CONNECTION RODS
CAUSE LESS WEAR OF
PISTONS AND CYLINDERS
WATER BY-PASSES FROM
CYLINDER TO HEADS
TIGHTLY ENCLOSED BASE
WITH LARGE REMOVABLE
PLATES
BUILT BY A SKILLED MECH-
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SEPARATE EXHAUST
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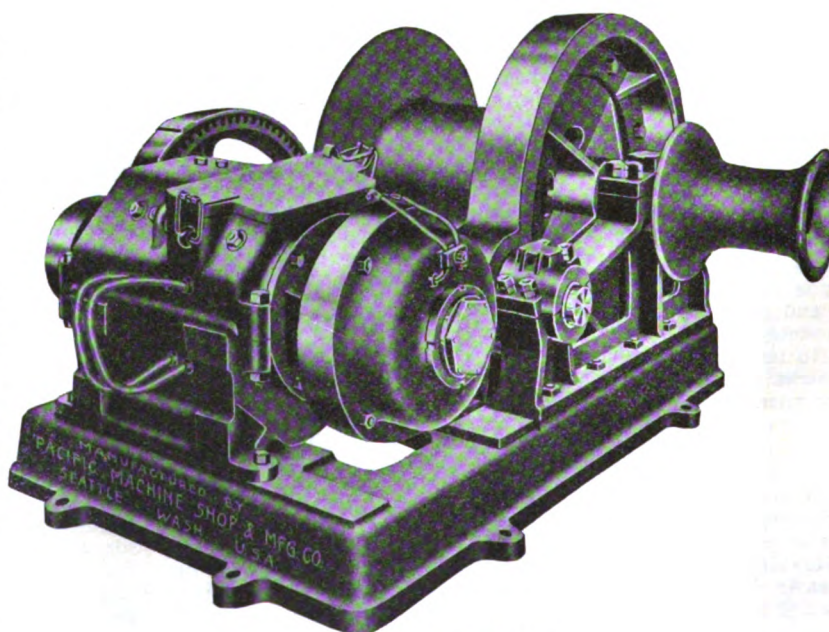
PLASTIC BRONZE
BEARINGS
OVERHEAD VALVES
RESULTING IN LOWER
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POWER
MULTIPLE DISC SPUR GEAR
TYPE FRICTION CLUTCH
PISTONS REMOVABLE
THROUGH CRANK CASE
OR ABOVE AS PREFERRED
SLOW RUNNING
ARRANGEMENT
AN ECONOMICAL
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FIRST & MINNA STREETS, SAN FRANCISCO**ELECTRIC CARGO WINCHES***Direct Geared
Absolutely Waterproof**Perfect Control Hoisting, Lowering
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Automatically protected
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A single drum winch,
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The fastest, simplest and
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Motorships, full powered
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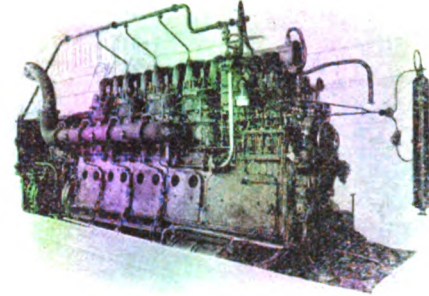
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SUBMARINES



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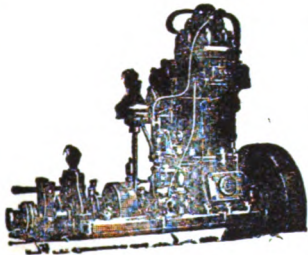
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NORWEGIAN MANUFACTURE

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22,000,000 Lires of Capital Fully Paid,

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The Fiat-San-Giorgio's motors have in a very few years attained perfection, as shown by the services accomplished by Italian submarines and by the long voyage from Spezia (Italy) to Rio Janeiro (South America) of the Brazilian submarine mother motorship "Caera."

EIGHTY motors totaling 85,000 b. h. p. already in use

NOW IN COURSE OF CONSTRUCTION—

—Many Standardized Motorships of 8,200 tons d. w. c.
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The owner loses real money.

Lost minutes mean lost dollars.

CUTTING & WASHINGTON WIRELESS

The boat owner who installs CUTTING & WASHINGTON apparatus pays for his equipment once and for all from the savings it effects. The boat owner whose boats are not equipped with wireless loses, every few months, more than the cost of CUTTING & WASHINGTON equipment.

You will pay for wireless on your boats whether you buy it or not—the question is whether you will buy it and pay once, or not buy it and pay many times. We respectfully submit the question to your better judgment.

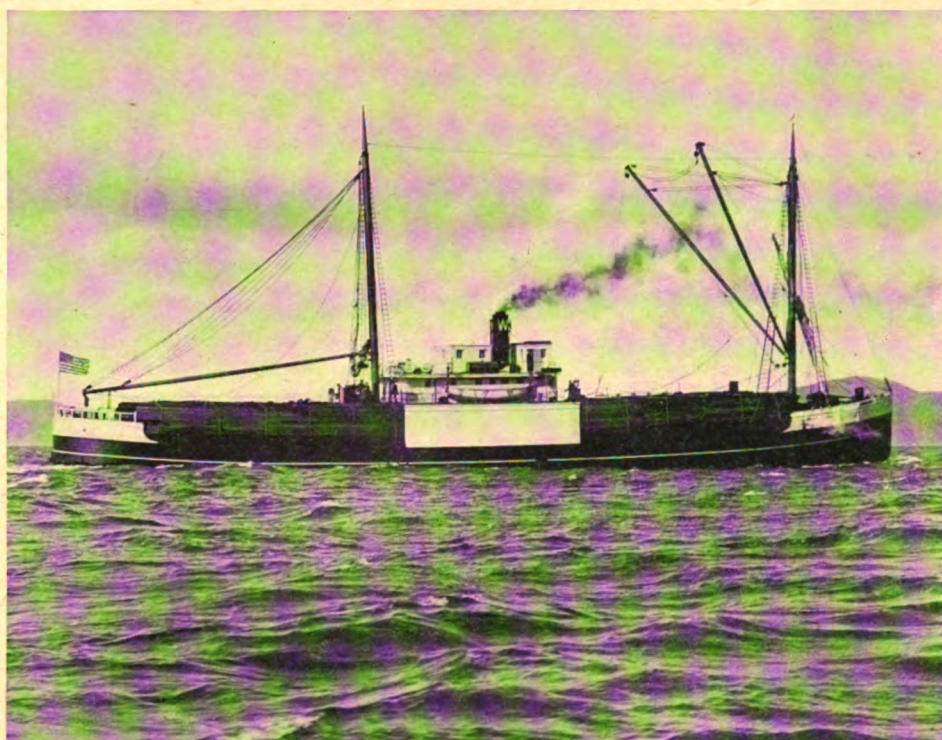
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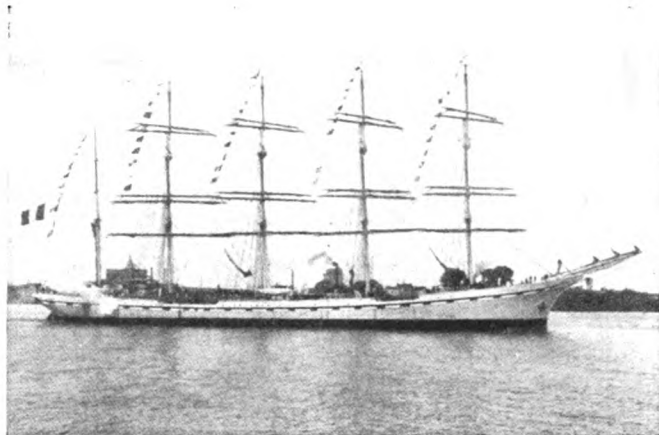
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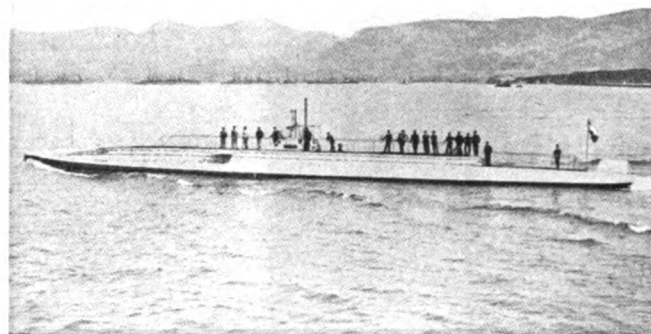
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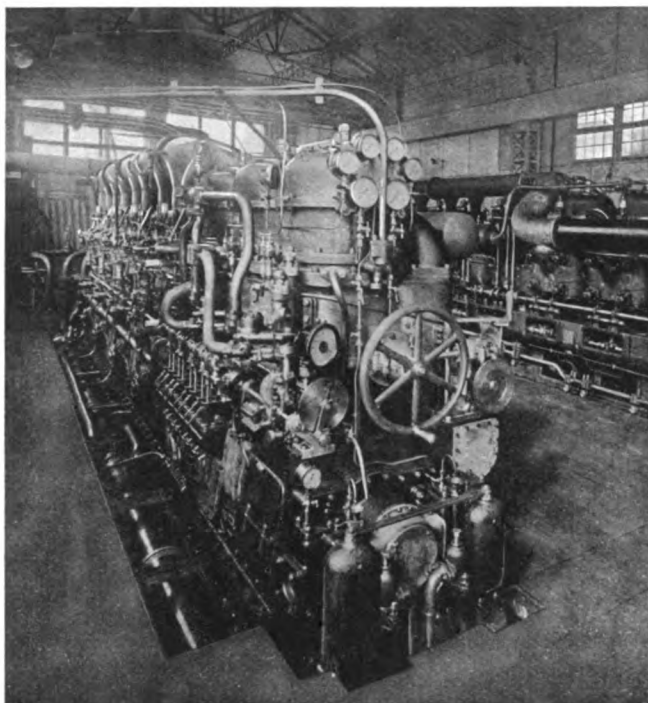


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2400
H. P.

For ONE Motor
(Submarine Type)



A SCHNEIDER 1500 H. P. DIESEL MARINE ENGINE FOR SUBMARINES

LIGHT WEIGHT

(46 lbs. per B. H. P.)

STRONGLY BUILT

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(0.400 lb. of Fuel Oil per
B. H. P.)

Two and Four-Cycle Diesel Engines for War and Merchant Ships



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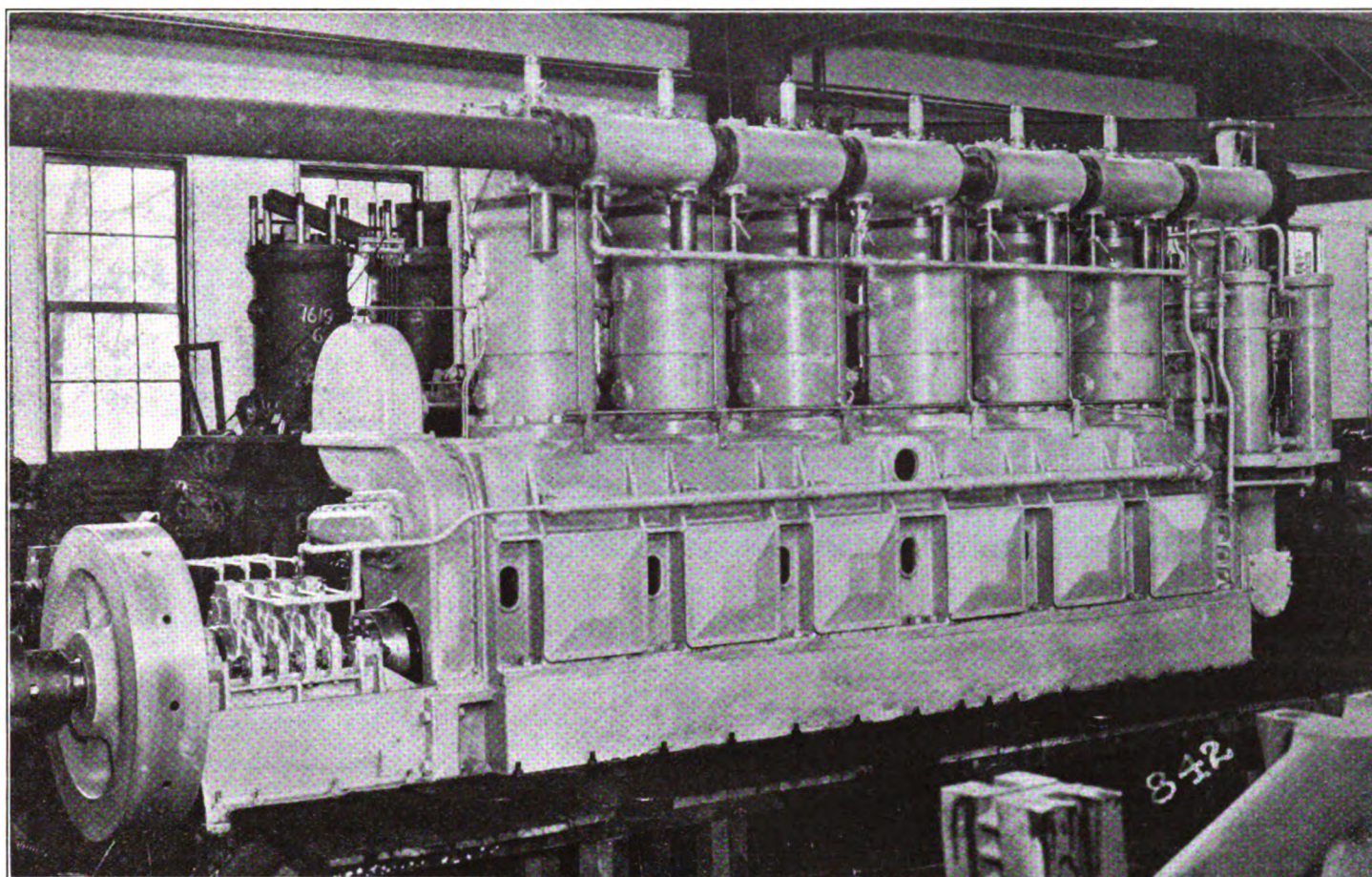
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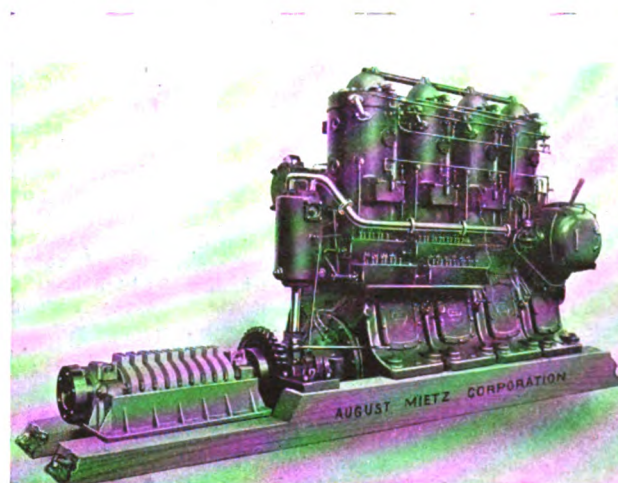
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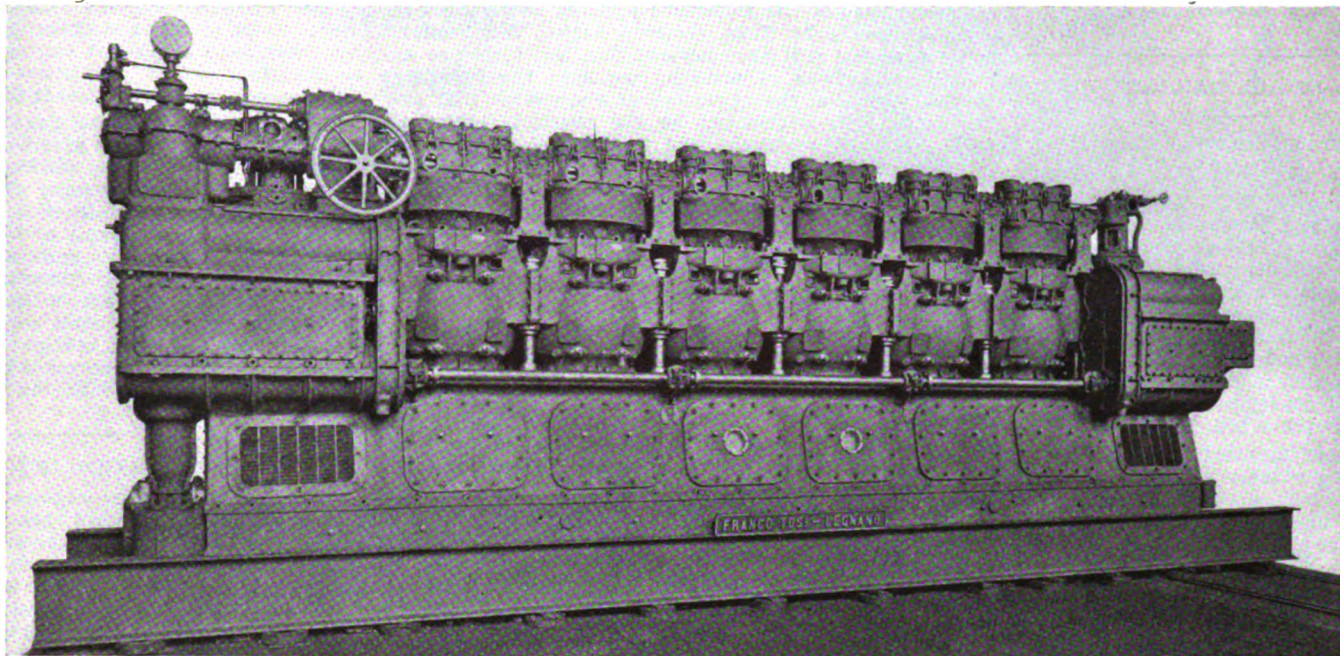
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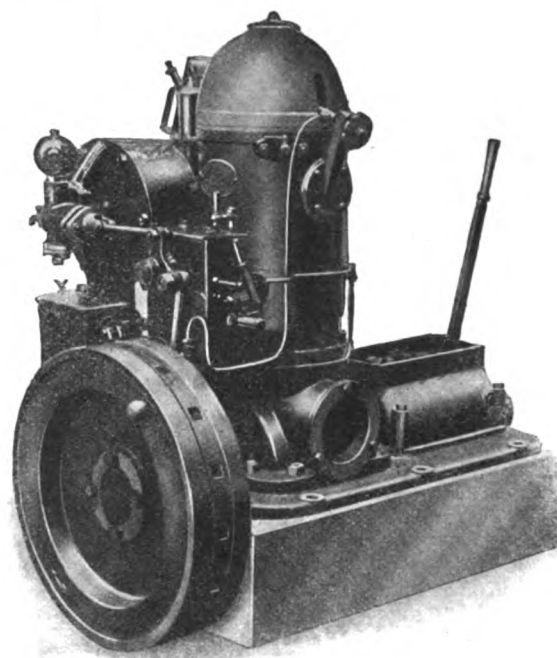
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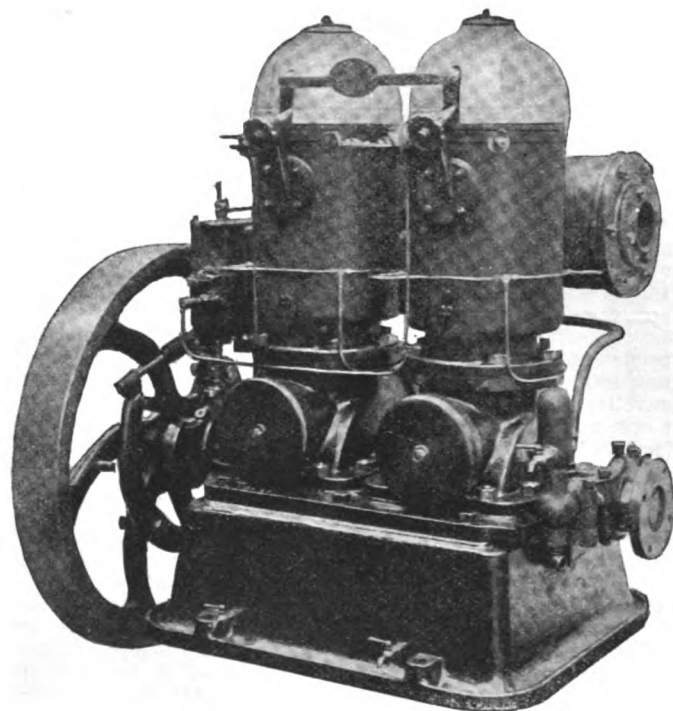
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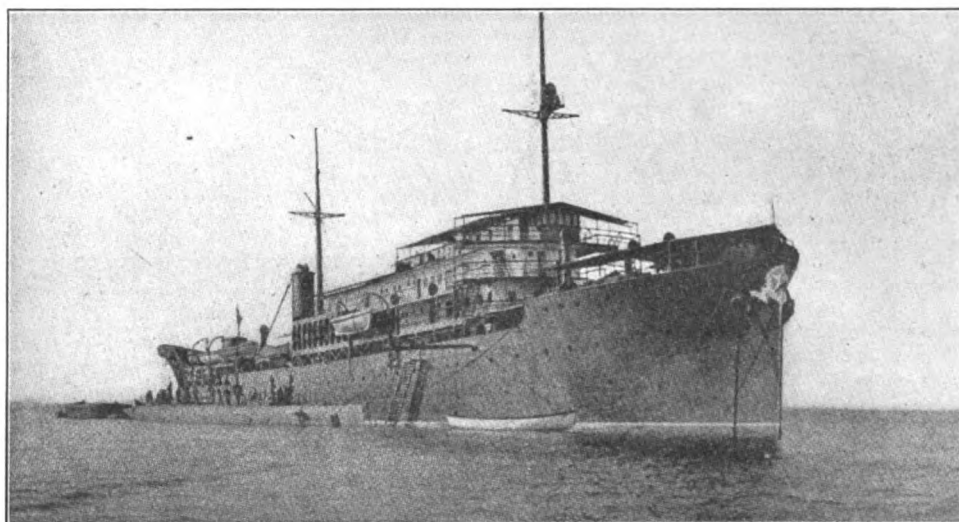
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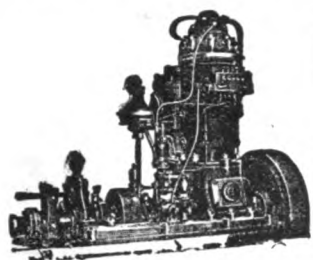
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| <ol style="list-style-type: none"> (1) Have internal arrangements and features of hull and structure adapted to the seas on which they are intended to ply, and to the branches of commerce which they are going to be specially devoted to, without prejudicing, or rendering less efficient the service they may be required for on these lines. (2) Are fitted with internal-combustion motors, which are very economical, consuming a weight of fuel-oil equivalent to the fourth part of the weight of coal which | <p>would be consumed with the same power in a reciprocating steam engine.</p> <p>—Other appreciable economic advantages are the diminution in the personnel in charge of the engine equipment, and the very great reduction in the time required to renew the supply of fuel.</p> <ol style="list-style-type: none"> (3) Are more remunerative, as the reduction in the fuel required to be carried allows of a greater space available for cargo. |
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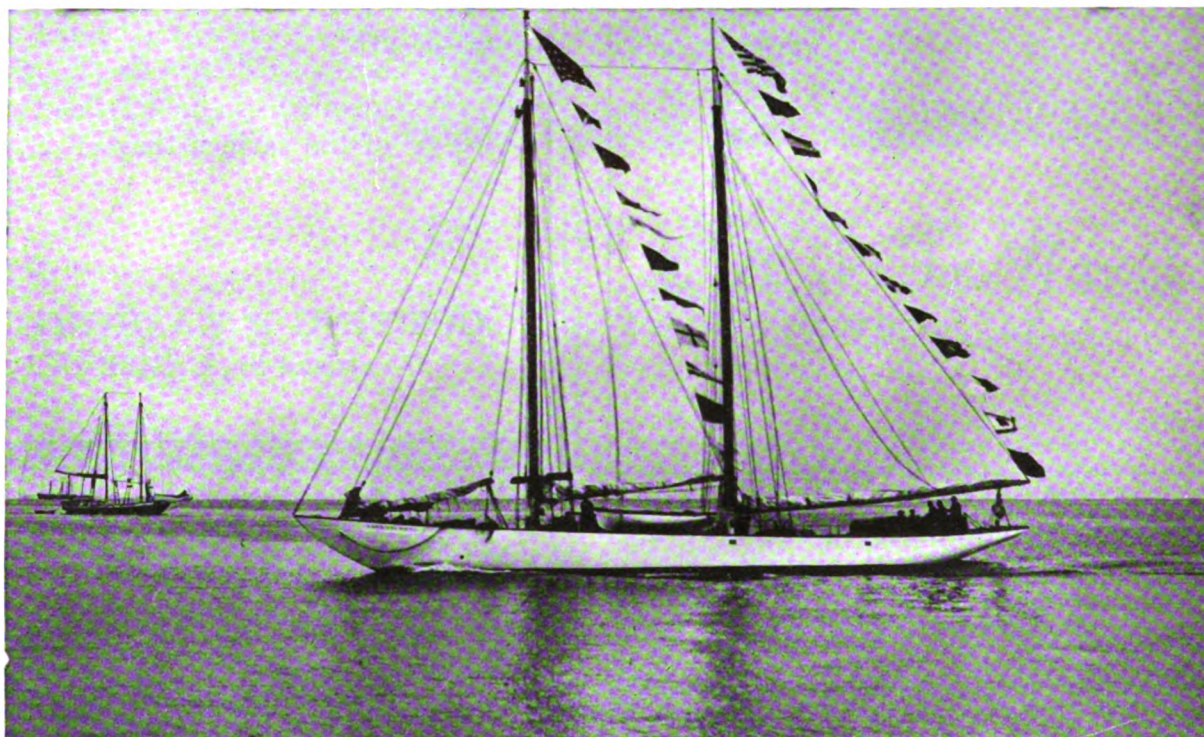
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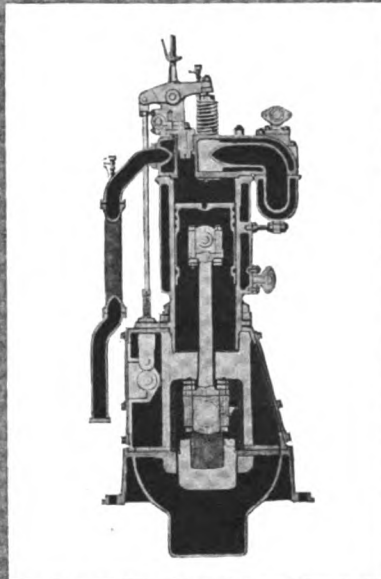
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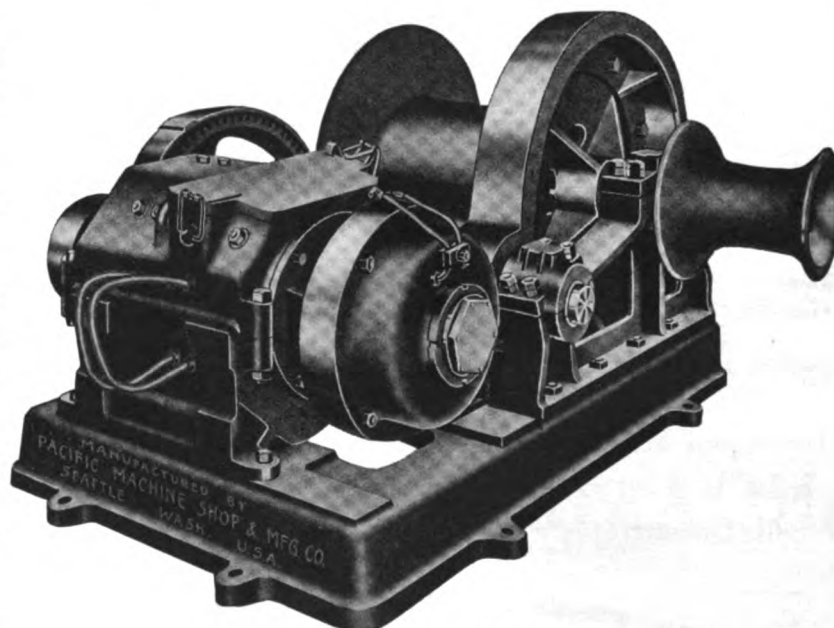
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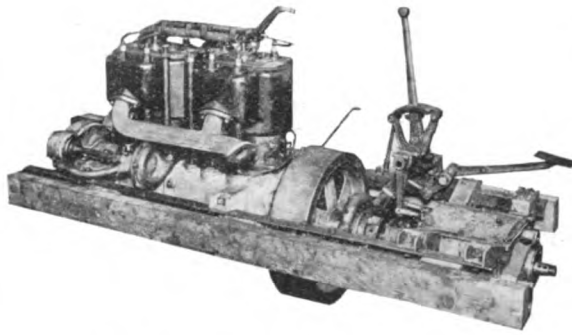
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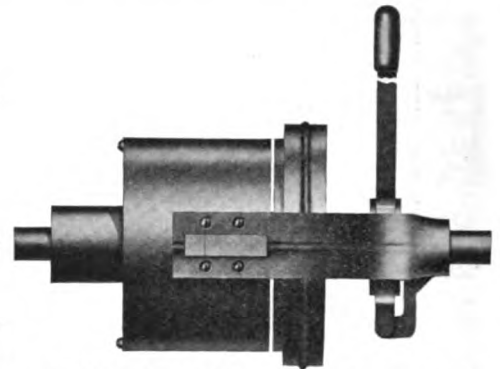
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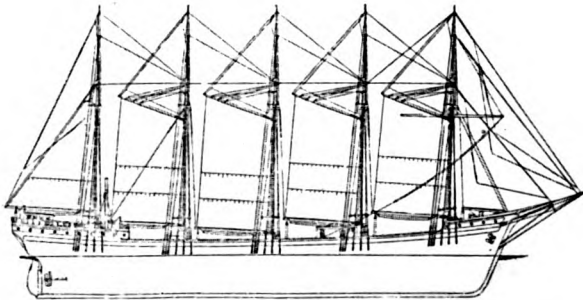
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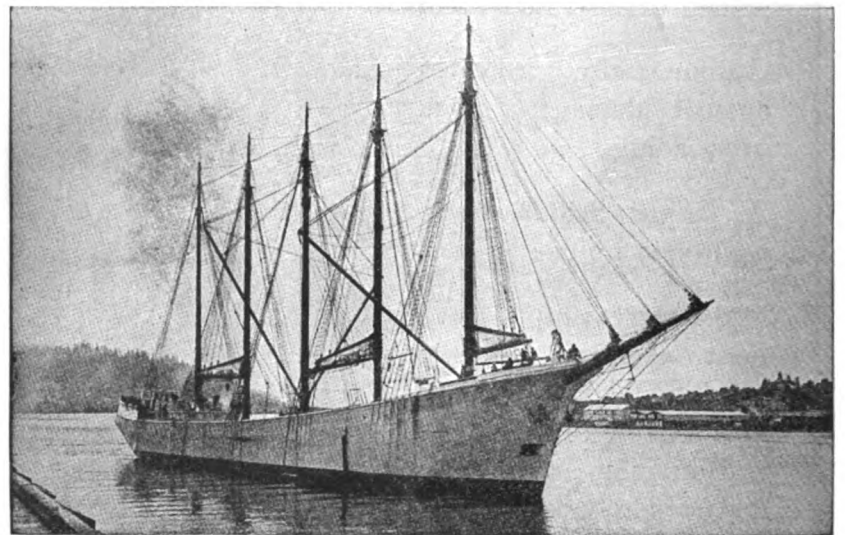
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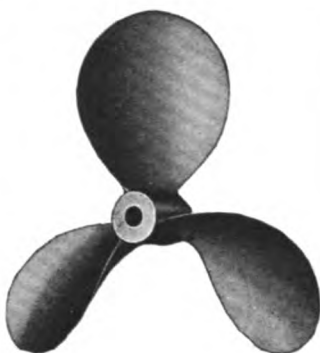
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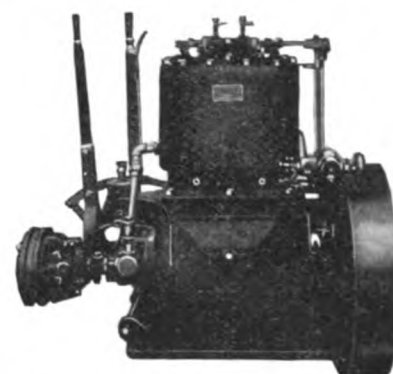
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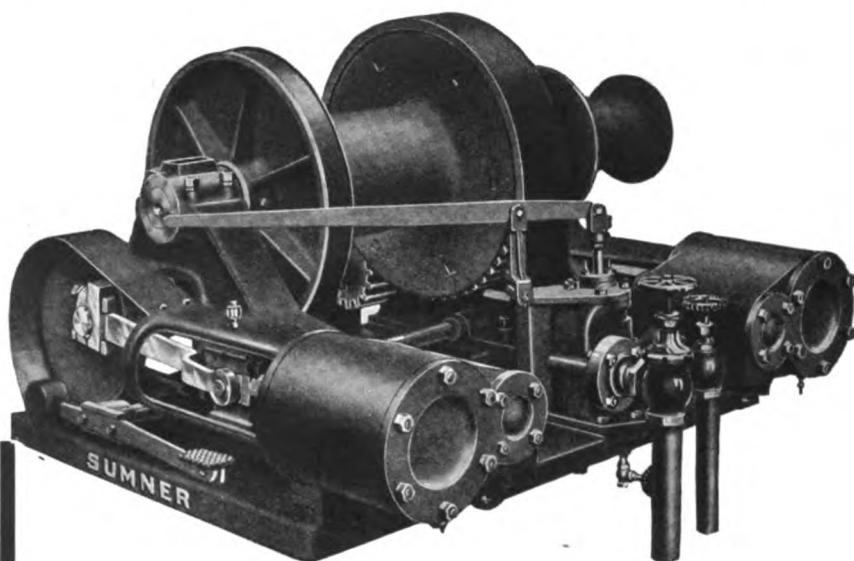
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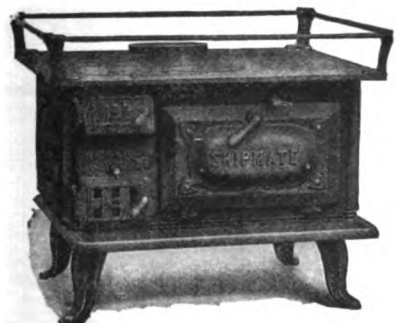
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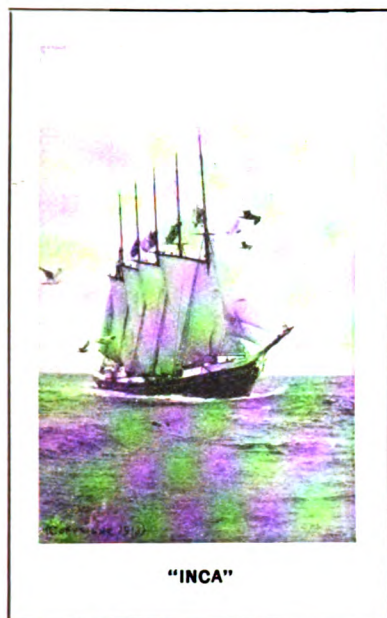
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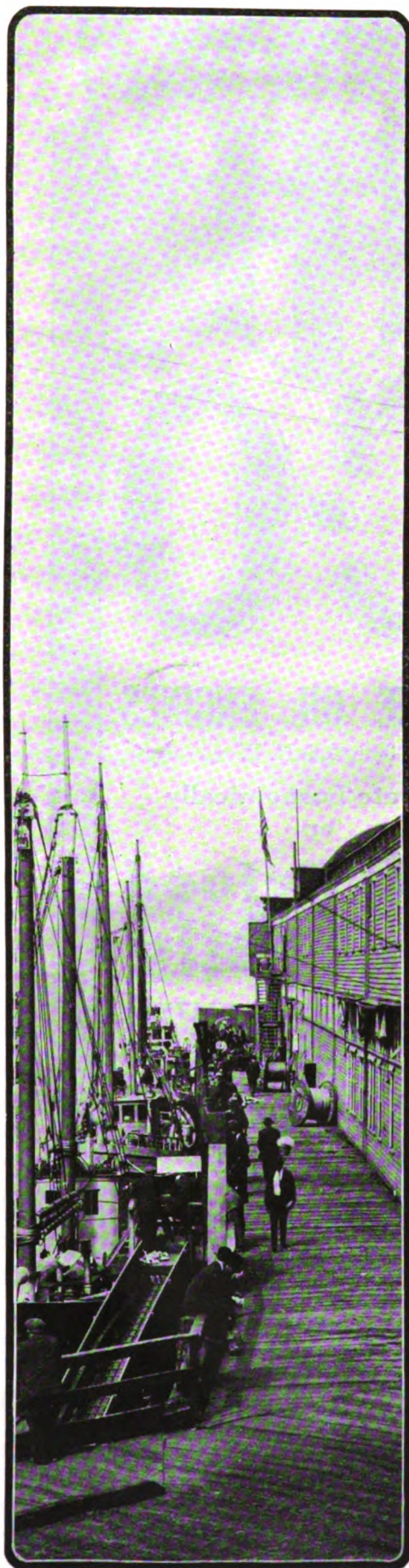
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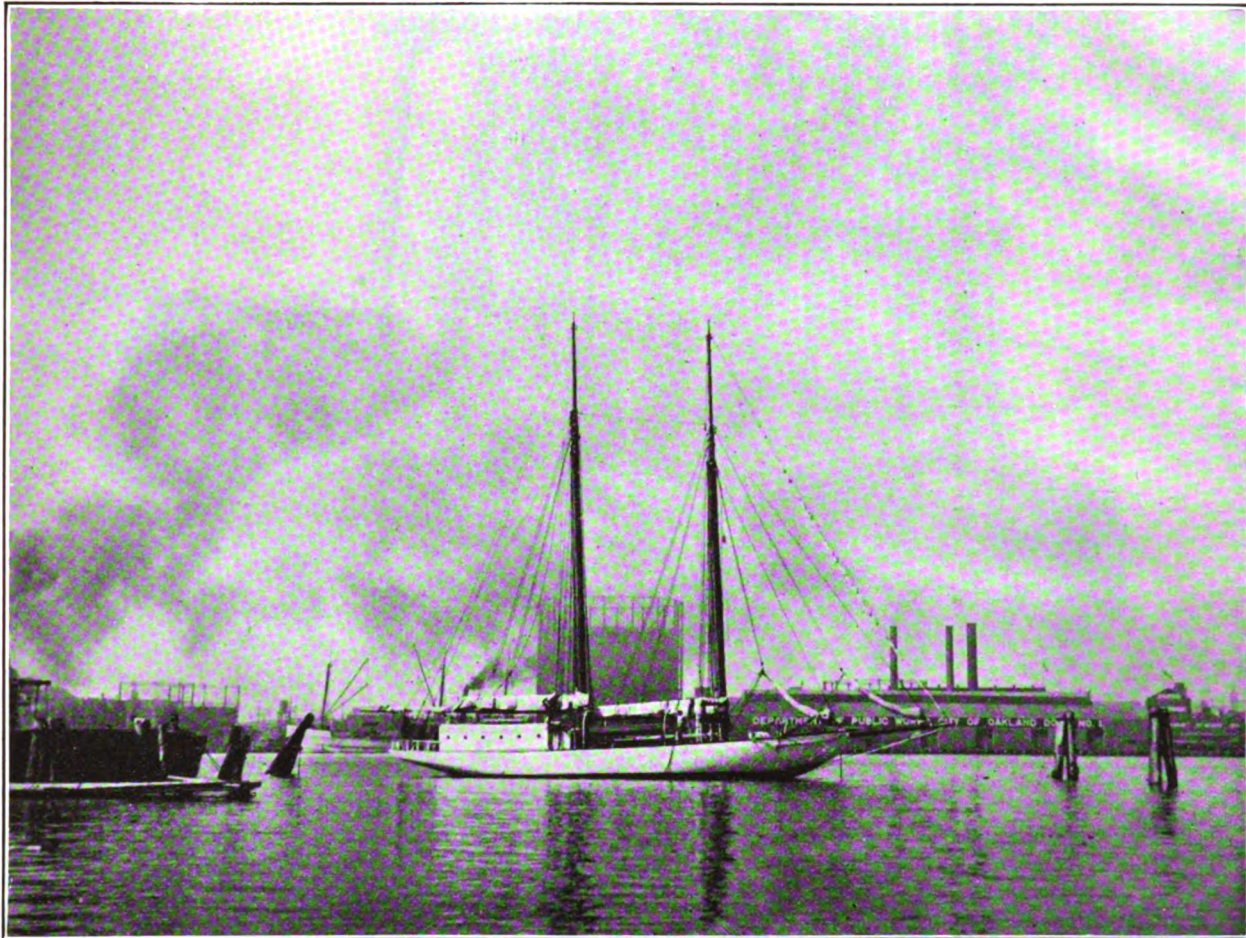
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Pacific Net & Twine Company

PIER 8, SEATTLE, U. S. A.



South Sea Traders



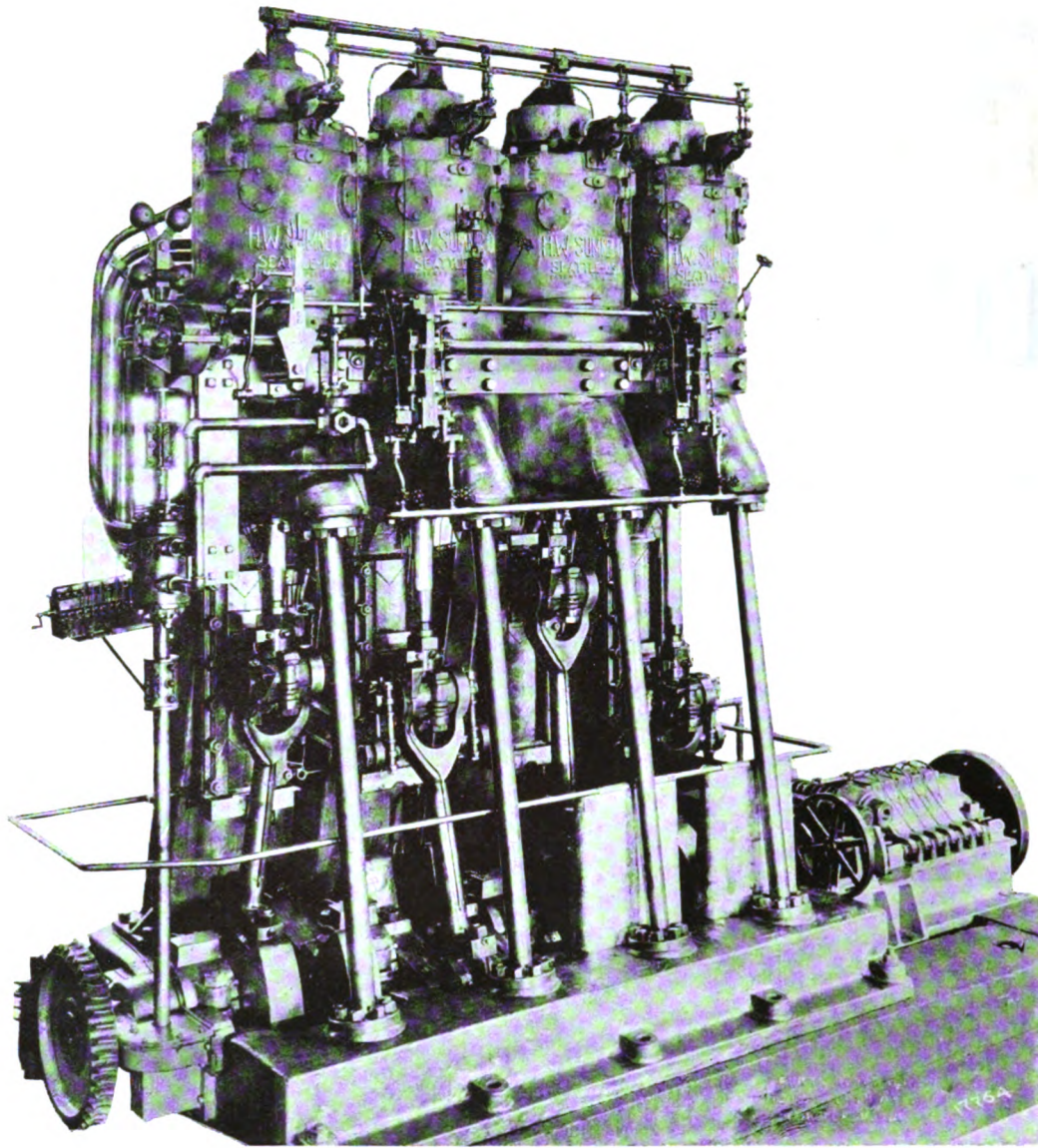
"MARION"

Equipped with a 35 H. P. Three Cylinder UNION Engine. Owned by Atkins, Kroll & Co.

The above illustration is from a photograph of the "Marion," taken in Oakland Harbor previous to her departure for the South Seas. Several additional South Sea traders are under construction at the present time. One of them will be equipped with UNION Open Crosshead Twin-Screw Engines of 220 H. P., four others, each with a 110 H. P. UNION Open Crosshead Engine, and two others with 35 H. P. three-cylinder UNION Engines.

UNION GAS ENGINE COMPANY

OAKLAND, CAL.



350 SHAFT HORSE POWER

The above is a photograph of one of the main engines of the M. S. "Santino," the first vessel equipped with Sumner Heavy Oil Marine Engines.

This vessel has made a voyage of more than 6,500 miles on schedule time without engine troubles. Fuel consumption, 15.5 bbls. per 24-hour day.

Sumner Heavy Oil Marine Engines

6000 (Shaft) H. P. Under Construction

We Are Prepared to Make Six Months Delivery on
350 Shaft Horse Power and 600 Shaft Horse Power

4 cylinder

6 cylinder

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Skandia Oil Engines

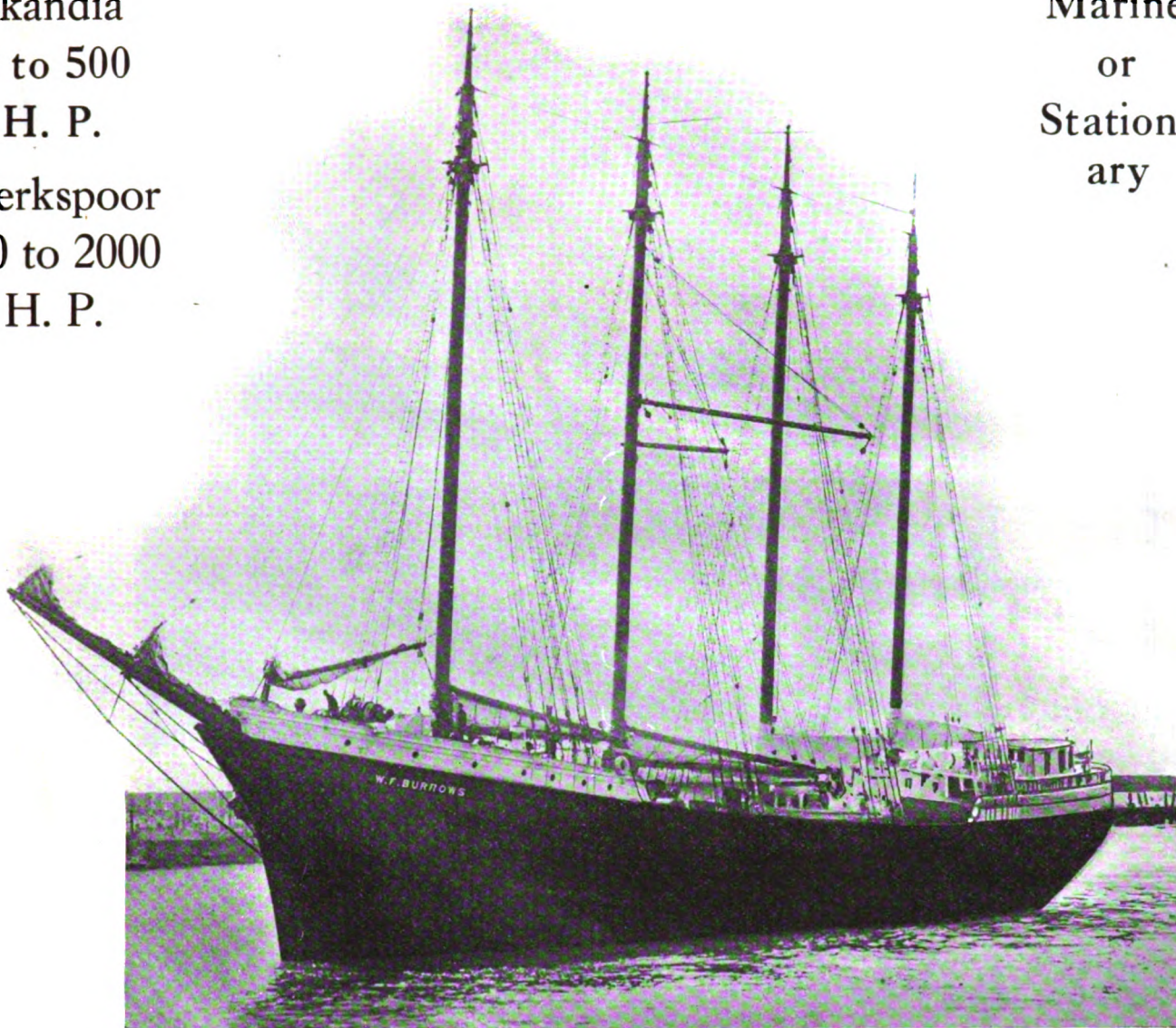
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H. P.

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Mr. Lee H. Wakefield, the owner of the "Apex" is also the owner of seventeen boats installed with Atlas engines, two of these being Atlas Diesels. Mr. Wakefield selects the Atlas knowing that it is the best engine obtainable and that their service is unequalled.

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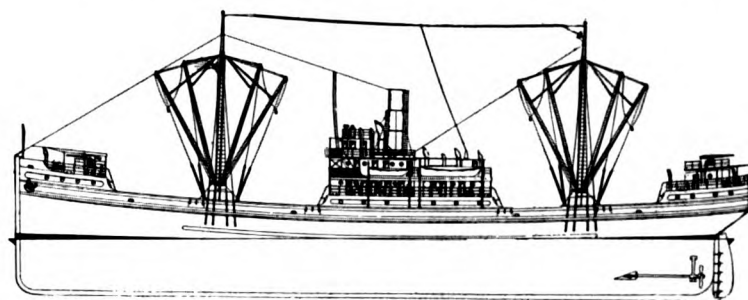
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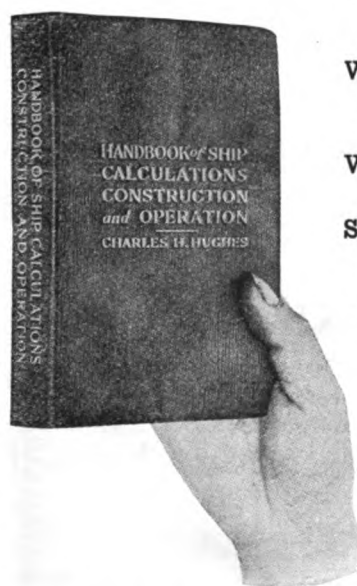
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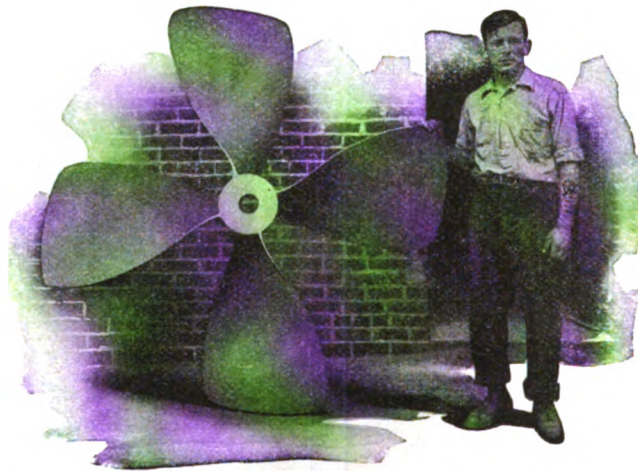
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Calol Fuel Oil is the result of scientific investigation and a carefully worked out process of preparation.

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For the correct lubrication of internal-combustion engines—Hot Ball Ignition, Surface-Ignition, Semi-Diesel, or Diesel type—we recommend

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The force-feed Madison-Kipp Lubri-cator is tested to supply oil against pressures as high as 133 atmospheres.

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For both types it has advantages of so technical a nature that they cannot be described in a page advertisement.

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It Feeds Only "Live" Oil

Since maximum compression is even more im-portant in Diesel-Type engines than in those using spark ignition, the use of "live oil" only is more im-portant.

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It Diminishes Oil Consumption and Repairs

The feed-adjustments of this lubri-

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So Madison-Kipp Lubricators safe-guard the ship-owner against excessive oil costs, swift depreciation, and grave repair charges.

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